

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 q
Edition : 07.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 775 801
Injection pump
Pump designation : PES5P120A720LS7172
EP type number : 0 412 725 805
Governor
Governor design. : RSV350...1050POA529
-2
Governor no. : 0 421 833 312

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM449 LA

1st version kW : 221.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 20.00...21.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1030
Rack travel in mm : 12.90...13.00
Del.quantity cm3/ : 22.9...23.2
100 s: (22.6...23.5)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 350.0
Rack travel in mm : 4.5...4.8
Del.quantity cm3/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1030
Aneroid pressure h: 1500
Del.quantity : 229.0...232.0
1000 : (226.0...235.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Control Lever
position degrees: 50...58

Testing:

1st rack travel in: 11.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 13.00
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.65
Speed rpm : 350
Rack travel in mm : 4.50...4.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1030
Rack travel in m: 12.90...13.00
2nd speed rpm : 750
Rack travel in m: 13.90...14.00
3rd speed rpm : 875
Rack travel in m: 13.50...13.70

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 750
Rack travel mm : 13.10...13.30

Measurement

Speed 1/min : 600

1st pressure hPa : 250
Rack travel in m: 10.50...10.70
2nd pressure hPa : 500
Rack travel in m: 12.20...12.40
3rd pressure hPa : 1050
Rack travel in m: 13.30...13.50
4th pressure hPa : 1500
Rack travel in m: 13.90...14.10
5th pressure hPa : -
Rack travel in m: 9.50...9.90

FUEL DELIVERY CHARACTERISTICS

1st version

A02

Aneroid pressure h: 750
Speed rpm : 700
Del.quantity cm3/ : 235.0...238.0
1000 s: (232.0...241.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1500
Speed rpm : 750
Del.quantity cm3/ : 251.0...254.0
1000 s: (248.0...257.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 146.0...148.0
1000 s: (143.0...151.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,0 c
Edition : 07.02.89
Replaces : 9.9.88
Test oil : ISO-4113

Combination no. : 0 402 776 805

Injection pump
Pump designation : PES6P120A720LS7155
EP type number : 0 412 726 812
Governor
Governor design. : RSV350...1050POA529
-1
Governor no. : 0 421 833 295

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM447 LA

1st version kW : 265.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
(5.15...5.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 13.40...13.50

Del.quantity cm³/ : 24.0...24.2

100 s: (23.7...24.5)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 4.5...4.8

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1400

Del.quantity : 240.0...242.0

1000 : (237.0...245.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 50...58

Testing:

1st rack travel in: 12.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 4.65
Speed rpm : 350
Rack travel in mm : 4.50...4.80

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 13.40...13.50
2nd speed rpm : 825
Rack travel in m: 14.10...14.30
3rd speed rpm : 950
Rack travel in m: 13.60...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 650
Rack travel mm : 13.00...13.20

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.70...10.90
2nd pressure hPa : 400
Rack travel in m: 11.40...11.60
3rd pressure hPa : 850
Rack travel in m: 13.20...13.40
4th pressure hPa : 1400
Rack travel in m: 14.30...14.50
5th pressure hPa : -
Rack travel in m: 9.80...10.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 650
Speed rpm : 600
Del.quantity cm3/ : 234.0...237.0
1000 s: (231.0...240.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1400
Speed rpm : 825
Del.quantity cm3/ : 263.0...266.0
1000 s: (260.0...269.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 151.0...154.0
1000 s: (148.0...157.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 240.0...260.0
1000 s: (236.0...264.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 9
Edition : 10.02.89
Replaces : 09.01.89
Test oil : ISO-4113

Combination no. : 0 403 436 108

Injection pump
Pump designation : PES6MM100/120RS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV350...1100MW82-3
Governor no. : 0 420 083 162

Cust. part no. : 3914125

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-830

1st version kW : 186.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

A05

Test pressure, bar: 30...32

Prestroke mm : 3.05...3.15
: (3.00...3.20)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 12.40...12.50
Del. quantity cm3/ : 14.8...15.0
100 s: (14.6...15.2)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 7.2...7.4
Del. quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1240
travel mm : 8.80...9.20
2nd speed rpm : 1140
travel mm : 7.80...8.00
3rd speed rpm : 700
travel mm : 3.80...4.40
4th speed rpm : 350
travel mm : 1.20...1.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 900
Del. quantity : 148.0...150.0
1000 : (146.0...152.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 11.40
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 7.3

Testing:
Speed rpm : 100
Minimum rack travel: 9.30
Speed rpm : 350
Rack travel in mm : 7.20...7.40

CONSTANT REGULATION
Speed rpm : 360...500

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.40...12.50
2nd speed rpm : 700
Rack travel in m: 13.20...13.30
3rd speed rpm : 1050
Rack travel in m: 12.40...12.60
4th speed rpm : 900
Rack travel in m: 12.80...13.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.20...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 11.30...11.40
2nd pressure hPa : 520
Rack travel in m: 12.70...13.00
3rd pressure hPa : 900
Rack travel in m: 13.20...13.30

START CUT-OUT

Speed 1/min : 270 (280)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 159.0...161.0
1000 s: (157.0...163.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 103.0...106.0
1000 s: (101.5...107.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (202.0...228.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 7.20...7.40
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 D 7
Edition : 10.02.89
Replaces : 11.11.88
Test oil : ISO-4113

Combination no. : 0 403 436 109

Injection pump
Pump designation : PES6MW100/120RS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV300...1050MW82-4
Governor no. : 0 420 083 168

Cust. part no. : 3915581

Customer-spec. information
Customer : CUMMINS/US

Engine : 6 CTA-830

1st version kW : 175.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

A07

Test pressure, bar: 30...32

Prestroke mm : 3.05...3.15
(3.00...3.20)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Phasing
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.60...12.70

Del.quantity cm3/ : 14.8...15.0

100 s: (14.6...15.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.7...7.9

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1210
travel mm : 9.00...9.40

2nd speed rpm : 1100
travel mm : 7.90...8.10

3rd speed rpm : 550
travel mm : 3.00...3.60

4th speed rpm : 300
travel mm : 1.10...1.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 148.0...150.0

1000 : (146.0...152.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 42...50

Testing:

1st rack travel in: 11.60
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.8

Testing:

Speed rpm : 100
Minimum rack travel: 9.30
Speed rpm : 300
Rack travel in mm : 7.70...7.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 9.50...9.70

Measurement

Speed 1/min : 500

1st pressure hPa : 300
Rack travel in m: 10.80...10.90
2nd pressure hPa : 520
Rack travel in m: 11.90...12.20
3rd pressure hPa : 900
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 145.5...148.5
1000 s: (143.0...151.0)
Spread cm3 : 5.00
1000 s: (7.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 78.0...80.0
1000 s: (76.0...82.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 215.0...225.0
1000 s: (212.0...228.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.70...7.90
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0°
angular displacement of the cam after
start of delivery of cylinder 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,1 F
Edition : 24.02.89
Replaces : 4.86
Test oil : ISO-4113

Combination no. : 0 403 446 151

Injection pump
Pump designation : PES6MW100/320RS1119
EP type number : 0 413 406 113
Governor
Governor design. : RGV300..1400MW58
Governor no. : 0 420 083 080

Customer-spec. information
Customer : VOLVO

Engine : TD 61..3012

1st version kW : 113.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 10.10...10.20

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.35

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...6.6

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.35

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Testing:

1st rack travel in: 9.00

Speed rpm : 1440...1450

2nd rack travel in: 4.00

Speed rpm : 1565...1595

4th rack travel in: 1680

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.5...6.6

Testing:

Speed rpm : 100
Minimum rack trave: 8.10
Speed rpm : 300
Rack travel in mm : 6.50...6.60

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (137.0...163.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.50...6.60
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL. 6,1 H
Edition : 03.03.89
Replaces : 29.04.88
Test oil : ISO-4113

Combination no. : 0 403 446 152

Injection pump
Pump designation : PES6MW100/320RS1119
EP type number : 0 413 406 113
Governor
Governor design. : RGV300...1400MW57
Governor no. : 0 420 083 078

Customer-spec. information
Customer : VOLVO

Engine : TD 61-3012

1st version kW : 132.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.9...7.0

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1580

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.40...8.60

3rd speed rpm : 550

travel mm : 3.40...4.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 505

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 10.60
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1595...1625
4th rack travel in: 1725
Speed rpm : 0.10...1.00

LOW IDLE 1
Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.9

Testing:
Speed rpm : 100
Minimum rack travel: 8.50
Speed rpm : 300
Rack travel in mm : 6.90...7.00

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 445
Rack travel mm : 11.20...11.30

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 310
Rack travel in m: 10.30...10.50
3rd pressure hPa : 505
Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 75.0...77.0
1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

A12

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (137.0...163.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.90...7.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 6,1 G
 Edition : 03.03.89
 Replaces : 29.04.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 153
 Injection pump
 Pump designation : PES6MW100/32ORS1119-
 1
 EP type number : 0 413 406 114
 Governor
 Governor design. : RQV300..1400MW57-1
 Governor no. : 0 420 083 079

Customer-spec. information
 Customer : VOLVO

Engine : TD 61..3012

1st version kW : 150.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.10...3.20
 : (3.05...3.25)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 10.4...10.6

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.4

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1580

travel mm : 9.50...9.90

2nd speed rpm : 1450

travel mm : 8.40...8.60

3rd speed rpm : 550

travel mm : 3.40...4.00

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 1480

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 615

Del.quantity : 104.0...106.0

1000 : (103.0...109.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:
1st rack travel in: 11.00
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1590...1620
4th rack travel in: 1700
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.3

Testing:
Speed rpm : 100
Minimum rack travel: 7.90
Speed rpm : 300
Rack travel in mm : 6.30...6.40

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 550
Pressure hPa : 525
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 270
Rack travel in m: 10.30...10.50
3rd pressure hPa : 615
Rack travel in m: 12.00...12.10

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: -
Speed rpm : 1000
Del.quantity cm3/ : 75.0...77.0
1000 s: (73.0...79.0)

RACK STOP ADJUSTMENT

Speed rpm : 100

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (137.0...163.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.30...6.40
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 Q
Edition : 07.02.89
Replaces : 30.09.88
Test oil : ISO-4113

Combination no. : 0 403 446 190

Injection pump
Pump designation : PES6MW100/320RS1154
EP type number : 0 413 406 144
Governor
Governor design. : RGV275...1250MW80
Governor no. : 0 420 083 128

Customer-spec. information
Customer : RVI

Engine : MIDR 060226

1st version kW : 128.7
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 16.50...19.50

A15

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm³/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 6.10...6.30

Del.quantity cm³/ : 2.3...2.7

100 s: (2.0...2.9)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1475

travel mm : 9.20...9.60

2nd speed rpm : 1300

travel mm : 7.80...8.00

3rd speed rpm : 500

travel mm : 3.00...3.60

4th speed rpm : 275

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 800

Del.quantity : 99.5...101.5

1000 : (97.5...103.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 12.00
Speed rpm : 1330...1350
2nd rack travel in: 4.00
Speed rpm : 1490...1530
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 6.8

Testing:

Speed rpm : 200
Minimum rack travel: 7.70
Speed rpm : 275
Rack travel in mm : 6.10...6.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 12.90...13.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.10...11.00
2nd pressure hPa : 200
Rack travel in m: 11.80...11.50
3rd pressure hPa : 360
Rack travel in m: 12.60...12.70

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 750
Del.quantity cm3/ : 91.5...94.5
1000 s: (89.0...97.0)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 49.0...51.0
1000 s: (47.0...53.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1330...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 88.0...102.0
1000 s: (85.0...105.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275
Rack travel in mm : 6.30...6.10
Del.quantity cm3/ : 23.0...27.0
1000 s: (20.5...29.5)
Spread cm3 : 3.50
1000 s: (5.00)

Remarks:

Setting and blocking of pointer of
start-of-delivery sensor on cyl. 1
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 S
Edition : 09.12.88
Replaces : 06.04.88
Test oil : ISO-4113

Combination no. : 0 403 446 193

Injection pump
Pump designation : PES6MW100/32ORS1159
EP type number : 0 413 406 146
Governor
Governor design. : RGV350...1300MW72-3
Governor no. : 0 420 083 142

Customer spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 136.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test Lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.4...6.5
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1250
travel mm : 7.80...8.00
2nd speed rpm : 1340
travel mm : 8.80...9.20
3rd speed rpm : 500
travel mm : 2.60...3.20
4th speed rpm : 350
travel mm : 1.30...1.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Del.quantity : 90.0...92.0
1000 : (88.0...94.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...51

Testing:
1st rack travel in: 9.60
Speed rpm : 1370...1390
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 11...19
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 350
Rack travel in mm : 6.40...6.50

CONSTANT REGULATION
Speed rpm : 370...500

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 1300
Del.quantity cm³/ : 94.0...98.0
1000 s: (92.0...100.0)
Spread cm³ : 6.50
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.60
Speed rpm : 1370...1390

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.40...6.50

Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:
Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R20
Edition : 09.12.88
Replaces : 05.08.88
Test oil : ISO-4113

Combination no. : 0 403 446 194

Injection pump
Pump designation : PES6MM100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1300MW46-12
Governor no. : 0 420 083 143

Customer-spec. information
Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 5.5...5.6
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50
2nd speed rpm : 1460
travel mm : 9.10...9.50
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 900
Aneroid pressure h: 800
Del.quantity : 103.0...105.0
1000 : (101.0...107.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...49

Testing:

1st rack travel in: 9.80
Speed rpm : 1365...1385
2nd rack travel in: 4.00
Speed rpm : 1470...1480
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.30
Speed rpm : 350
Rack travel in mm : 5.50...5.60

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 170
Rack travel mm : 10.40...10.50

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 230
Rack travel in m: 10.60...10.90
3rd pressure hPa : 800
Rack travel in m: 10.80...10.90

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1300
Del.quantity cm³/ : 105.0...109.0
1000 s: (103.0...111.0)
Spread cm³ : 5.00
1000 s: (7.9)
Aneroid pressure h: -

A20

Speed rpm : 500
Del.quantity cm³/ : 87.0...89.0
1000 s: (85.0...91.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1365...1385

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.50...5.60
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R21
Edition : 09.12.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 446 195

Injection pump
Pump designation : PES6MM100/32ORS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1200MM46-13
Governor no. : 0 420 083 144

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 180.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del.quantity : 117.5...119.5

1000 : (115.5...121.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...48

Testing:

1st rack travel in: 11.30
Speed rpm : 1265...1285
2nd rack travel in: 4.00
Speed rpm : 1395...1405
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 190
Rack travel mm : 11.20...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 360
Rack travel in m: 11.90...12.20
3rd pressure hPa : 800
Rack travel in m: 12.30...12.40

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del.quantity cm³/ : 120.0...124.0
1000 s: (118.0...126.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 86.0...88.0
1000 s: (84.0...90.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.40
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R23
 Edition : 09.12.88
 Replaces : 19.02.88
 Test oil : ISO-4113

Combination no. : 0 403 446 196

Injection pump
 Pump designation : PES6MM100/320RS1112
 EP type number : 0 413 406 108
 Governor
 Governor design. : RQV350...1200MM46-14
 Governor no. : 0 420 083 145

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 169.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.3

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
 travel mm : 8.30...8.50

2nd speed rpm : 1460
 travel mm : 9.10...9.50

3rd speed rpm : 550
 travel mm : 3.10...3.70

4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del.quantity : 104.0...106.0

1000 : (102.0...108.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 10.40

Speed rpm : 1250...1270

2nd rack travel in: 4.00

Speed rpm : 1390...1400

4th rack travel in: 1460

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 12...20

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 6.2

Testing:

Speed rpm : 100

Minimum rack travel: 9.00

Speed rpm : 350

Rack travel in mm : 6.20...6.30

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 180

Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.50...10.60

2nd pressure hPa : 270

Rack travel in m: 11.10...11.20

3rd pressure hPa : 800

Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800

Speed rpm : 1200

Del.quantity cm³/ : 107.0...111.0

1000 s: (105.0...113.0)

Spread cm³ : 6.50

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 84.0...86.0

1000 s: (82.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

Speed rpm : 1250...1270

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 140.0...180.0

1000 s: (137.0...183.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.30

Del.quantity cm³/ : 16.0...20.0

1000 s: (13.5...22.5)

Spread cm³ : 3.50

1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R24
Edition : 09.12.88
Replaces : 22.04.88
Test oil : ISO-4113

Combination no. : 0 403 446 197

Injection pump
Pump designation : PES6MW100/320RS1112
EP type number : 0 413 406 108
Governor
Governor design. : RQV350...1200MW46-15
Governor no. : 0 420 083 146

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 158.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.4

Del.quantity cm3/ : 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50

2nd speed rpm : 1460
travel mm : 9.10...9.50

3rd speed rpm : 550
travel mm : 3.10...3.70

4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 800
Aneroid pressure h: 800
Del.quantity : 99.0...101.0
1000 : (97.0...103.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 43...48

Testing:

1st rack travel in: 10.00
Speed rpm : 1270...1290
2nd rack travel in: 4.00
Speed rpm : 1380...1390
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 360...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 200
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.40...10.50
2nd pressure hPa : 280
Rack travel in m: 10.80...11.10
3rd pressure hPa : 800
Rack travel in m: 11.00...11.10

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del.quantity cm³/ : 101.0...105.0
1000 s: (99.0...107.0)
Spread cm³ : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 84.0...86.0
1000 s: (82.0...88.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.40
Del.quantity cm³/ : 19.0...23.0
1000 s: (16.5...25.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 T
Edition : 09.12.88
Replaces : 19.02.88
Test oil : ISO-4113

Combination no. : 0 403 446 198

Injection pump
Pump designation : PES6MW100/32ORS1160
EP type number : 0 413 406 147
Governor
Governor design. : RQV350...1200MW46-16
Governor no. : 0 420 083 147

Customer spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 176.4
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.5...6.6

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 800

Del.quantity : 118.0...120.0

1000 : (116.0...122.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...49

Testing:

1st rack travel in: 11.30
Speed rpm : 1260...1280
2nd rack travel in: 4.00
Speed rpm : 1385...1395
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.5

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.50...6.60

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 800
Pressure hPa : 180
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 800

1st pressure hPa : -
Rack travel in m: 10.00...10.10
2nd pressure hPa : 480
Rack travel in m: 11.80...12.10
3rd pressure hPa : 800
Rack travel in m: 12.30...12.40

START CUT-OFF

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del.quantity cm³/ : 120.0...124.0
1000 s: (118.0...126.0)
Spread cm³ : 6.50
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 800
Del.quantity cm³/ : 80.0...82.0
1000 s: (78.0...84.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.60
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 T 1
Edition : 09.12.88
Replaces : 06.04.88
Test oil : ISO-4113

Combination no. : 0 403 446 199

Injection pump
Pump designation : PES6MM100/320RS1160
EP type number : 0 413 406 147
Governor
Governor design. : RQV350...1200MW46-17
Governor no. : 0 420 083 148

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 154.5
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 016

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.30...11.40

Del.quantity cm³/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.3...6.4
Del.quantity cm³/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm³ : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350
travel mm : 8.30...8.50
2nd speed rpm : 1460
travel mm : 9.10...9.50
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 800
Aneroid pressure h: 800
Del.quantity : 101.0...103.0
1000 : (99.0...105.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 44...49

Testing:

1st rack travel in: 10.30
Speed rpm : 1260...1280
2nd rack travel in: 4.00
Speed rpm : 1375...1385
4th rack travel in: 1500
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 190
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.20...10.30
2nd pressure hPa : 290
Rack travel in m: 10.90...11.20
3rd pressure hPa : 800
Rack travel in m: 11.30...11.40

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1200
Del.quantity cm³/ : 104.0...108.0
1000 s: (102.0...110.0)
Spread cm³ : 6.50
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 75.5...77.5
1000 s: (73.5...79.5)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1260...1280

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.40
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 R25
 Edition : 09.12.88
 Replaces : 27.10.88
 Test oil : ISO-4113

Combination no. : 0 403 446 213

Injection pump
 Pump designation : PES6MM100/320RS1112
 EP type number : 0 413 406 108
 Governor
 Governor design. : RQV350...1300MM72-4
 Governor no. : 0 420 083 170

Customer-spec. information
 Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 10.80...10.90

Del.quantity cm³/ : 10.3...10.5

100 s: (10.1...10.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.5...5.6

Del.quantity cm³/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460
 travel mm : 9.10...9.50

2nd speed rpm : 1350
 travel mm : 8.30...8.50

3rd speed rpm : 550
 travel mm : 3.10...3.70

4th speed rpm : 350
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 900
 Aneroid pressure h: 800
 Del.quantity : 103.0...105.0
 1000 : (101.0...107.0)
 Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 43...51

Testing:

1st rack travel in: 9.80
Speed rpm : 1365...1385
2nd rack travel in: 4.00
Speed rpm : 1470...1480
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 9...17
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 7.30
Speed rpm : 350
Rack travel in mm : 5.50...5.60

CONSTANT REGULATION

Speed rpm : 390...480

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 800
Speed rpm : 1300
Del.quantity cm³/ : 105.0...109.0
1000 s: (103.0...111.0)
Spread cm³ : 5.00
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1365...1385

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

B04

Rack travel in mm : 5.50...5.60
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 T 2
 Edition : 09.12.88
 Replaces : 04.11.88
 Test oil : ISO-4113
 Combination no. : 0 403 446 214
 Injection pump
 Pump designation : PES6MW100/320RS1160
 EP type number : 0 413 406 147
 Governor
 Governor design. : RQV350...1300MW46-18
 Governor no. : 0 420 083 171

Customer-spec. information
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 156.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 016

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,5

Test lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

travel mm : 9.10...9.50

2nd speed rpm : 1350

travel mm : 8.30...8.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 800

Del.quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever
position degrees: 42...50

Testing:
1st rack travel in: 10.80
Speed rpm : 1355...1375
2nd rack travel in: 4.00
Speed rpm : 1475...1485
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 6.4

Testing:
Speed rpm : 100
Minimum rack travel: 9.00
Speed rpm : 350
Rack travel in mm : 6.30...6.50

CONSTANT REGULATION
Speed rpm : 300...450

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 800
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 165
Rack travel in m: 10.60...10.70
3rd pressure hPa : 360
Rack travel in m: 11.20...11.50

START CUT-OUT

Speed 1/min : 180 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 800
Speed rpm : 1300
Del.quantity cm3/ : 111.5...114.5
1000 s: (109.0...117.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 73.0...75.0
1000 s: (71.0...77.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1355...1375

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...180.0
1000 s: (137.0...183.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose
with restriction of 1.2 mm diameter.

Before checking sleeve position,
first adjust latching.

In unlatched condition, do not
operate greater than $n = 500$ 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 61
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 215
Injection pump
Pump designation : PES6MW100/720RS1131
EP type number : 0 413 406 123
Governor
Governor design. : RQV300...1300MW50-5
Governor no. : 0 420 083 187

Customer-spec. information
Customer : DB

Engine : OM 366 LA

1st version kW : 146.0
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
: (3.65...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.00...12.10

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.7...1.1

100 s: (0.4...1.3)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 11.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1440...1470
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 300
Rack travel in mm : 6.00...6.20

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 300
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.60...10.70
2nd pressure hPa : 230
Rack travel in m: 10.90...11.20
3rd pressure hPa : 700
Rack travel in m: 12.00...12.10

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600
Del.quantity cm3/ : 74.0...77.0
1000 s: (71.5...79.5)
Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm3/ : 51.0...53.0
1000 s: (49.0...55.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 7.0...11.0
1000 s: (4.5...13.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 55
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 216
 Injection pump
 Pump designation : PES6MW100/720RS1144-1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1400MW48-8
 Governor no. : 0 420 083 175

Customer-spec. information
 Customer : DB

Engine : OM 366 A

1st version kW : 125.0
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 715 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 7.5...7.7

100 s: (7.3...7.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.5...8.7

Del.quantity cm3/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1550
 travel mm : 9.10...9.50

2nd speed rpm : 1450
 travel mm : 8.30...8.50

3rd speed rpm : 500
 travel mm : 2.50...3.10

4th speed rpm : 300
 travel mm : 1.00...1.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1430

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 75.0...77.0

1000 : (73.0...79.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 9.70
Speed rpm : 1440...1450
2nd rack travel in: 4.00
Speed rpm : 1535...1565
4th rack travel in: 1650
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.6

Testing:
Speed rpm : 100
Minimum rack travel: 10.00
Speed rpm : 300
Rack travel in mm : 8.50...8.70

TORQUE CONTROL
Dimension a mm : 1.50
Torque control curve - 1st version
1st speed rpm : 1400
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 12.20...12.30
3rd speed rpm : 950
Rack travel in m: 11.70...11.90
4th speed rpm : 1200
Rack travel in m: 10.80...11.10

START CUT-OUT

Speed 1/min : 200 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 74.5...77.5
1000 s: (72.0...80.0)
Spread cm3 : 5.00
1000 s: (7.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1440...1450

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 8.50...8.70
Del.quantity cm3/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 56
 Edition : 22.12.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 403 446 217
 Injection pump
 Pump designation : PES6MM100/72ORS1144-
 1
 EP type number : 0 413 406 159
 Governor
 Governor design. : RQV300...1300MW48-9
 Governor no. : 0 420 083 176

Customer spec. information
 Customer : DB

Engine : OM366A

1st version kW : 125.0
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 7.7...7.9

100 s: (7.5...8.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1440

travel mm : 9.30...9.70

2nd speed rpm : 1350

travel mm : 8.60...8.80

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.00
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1425...1455
4th rack travel in: 1550
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.9

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.00

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1300
Rack travel in m: 11.00...11.10
2nd speed rpm : 800
Rack travel in m: 11.50...11.80
3rd speed rpm : 585
Rack travel in m: 12.00...12.20
4th speed rpm : 1100
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 75.5...78.5
1000 s: (73.0...81.0)
Spread cm³ : 5.00
1000 s: (7.0)
Speed rpm : 585
Del.quantity cm³/ : 68.5...71.5
1000 s: (66.0...74.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.00

Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 78.0...88.0
1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 7.80...8.00
Del.quantity cm³/ : 9.0...13.0
1000 s: (6.5...15.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 D 59
Edition : 07.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 403 446 219
Injection pump
Pump designation : PES6MW100/720RS1120
EP type number : 0 413 406 112
Governor
Governor design. : RQV300...1300MW59-1
Governor no. : 0 420 083 181

Customer-spec. information
Customer : DB

Engine : OM366LA

1st version kW : 141.7
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.50...8.70

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 0.70...1.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1325

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 86.0...88.0

1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 11.10
Speed rpm : 1340...1350
2nd rack travel in: 4.00
Speed rpm : 1450...1480
4th rack travel in: 1530
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 320...550

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 310
Rack travel mm : 11.80...11.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.10
2nd pressure hPa : 280
Rack travel in m: 11.20...11.50
3rd pressure hPa : 700
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 75.5...78.5
1000 s: (73.0...81.0)

Spread cm3 : 5.00
1000 s: (7.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 83.0...93.0
1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 22,4 e
Edition : 2.3.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 406 036 027

Injection pump
Pump designation : PE6ZWM120/410/3RS28/
2
EP type number : 0 416 026 002
Governor
Governor design. : RQU300/700ZWA42L
Governor no. : 0 422 404 010

Customer-spec. information
Customer : MTU

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 027

Outside diameter
x Wall thickness
x Length mm : 8,00X2,00X1500

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10
: (1.95...2.15)
Rack travel in mm : 12.00
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 00.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 18.00

Del.quantity cm3/ : 33.6...34.2
100 s : (33.3...34.5)

Spread cm3 : 1.0
100 s : (1.5)

2nd speed rpm : 600
Rack travel in mm : 6.00
Del.quantity cm3/ : 7.9...9.9
100 s : (7.5...10.3)
Spread cm3 : 1.1
100 s : (1.6)
3rd speed rpm : 250
Rack travel in mm : 6.00
Del.quantity cm3/ : 4.0...5.6
100 s : (3.6...6.0)
Spread cm3 : 1.0
100 s : (1.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: 55...61
Speed rpm : 450
Rack travel in mm : 22.00

RATED SPEED

1st version

Setting point:
Speed rpm : 450
Rack travel in mm : 22.0

Testing:
1st rack travel in: 21.00
Speed rpm : 705...720
2nd rack travel in: 4.00
Speed rpm : 765...795
4th rack travel in: 810
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.00

Testing:

Speed rpm : 225
Minimum rack trave: 12.00
Speed rpm : 375
Rack travel in mm : 2.00...3.50
Rack travel in mm : 2.75
Speed rpm : 355...395
Speed rpm : 700
Maximum rack trave: 2.00
Rack travel in mm : <0.01
Speed rpm : 720...740

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 21.00
Speed rpm : 705...720

Remarks:
Full-load delivery is set on engine
according to engine test report.

Stamp dimension "0". Control-rod
travel "0" corresponds to 1.0 mm
clearance of the control-collar
capsule from the end-face stop plate.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MTU 31,7 j
Edition : 3.3.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 406 038 999

Injection pump
Pump designation : PEV8ZWM160/120RS1040
EP type number : 0 416 068 999
Governor
Governor design. : RQU425...600/1300ZWA
62-2
Governor no. : 0 422 405 020

Customer-spec. information
Customer : MTU

Engine : MB 871

TEST BENCH REQUIREMENTS

Test oil
Outlet temp, °C : 42...45

Overflow valve : -

Overflow
quantity min. 1/h: 600...720

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 069

Outside diameter
x Wall thickness
x Length mm : 8,00X2,00X1500

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.50...2.60
: (2.45...2.65)
Rack travel in mm : 12.00
Firing order : 8-2-1-6-4-3-5-7

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 9.00

Del.quantity cm3/ : 26.5...27.9 *
100 s : (26.2...28.2)

Spread cm3 : 1.6
100 s : (2.4)

2nd speed rpm : 425
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 8.0...9.0
100 s : (-)
Spread cm3 : 1.6
100 s : (-)

1st speed rpm : 1300
Rack travel in mm : 9.00
Del.quantity cm3/ : 25.1...26.5**
100 s : (24.8...26.8)
Spread cm3 : 1.6
100 s : (2.4)
2nd speed rpm : 425
Rack travel in mm : 6.30...6.50
Del.quantity cm3/ : 6.4...7.4
100 s : (-)
Spread cm3 : 1.6
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: 45...55
Speed rpm : 800
Rack travel in mm : 12.00...12.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1300
Del.quantity : 450.0...454.0 *
1000 : (447.0...457.0)
Spread cm3 : 8.0
1000 : (12.0)
2nd version
Speed rpm : 1300
Del.quantity cm3/ : 436.0...440.0**
1000 s : (433.0...443.0)

Spread cm³ : 8.0
1000 s: (12.0)

RATED SPEED

1st version
Control lever
position degrees: 52...58

Testing:

1st rack travel in: 13.80
Speed rpm : 1325...1340
2nd rack travel in: 4.00
Speed rpm : 1420...1460
3rd rack travel in: <0.01
Speed rpm : 1460...1520

LOW IDLE 1

Control lever
position degrees: 13...19
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 6.50...6.70
Speed rpm : 300
Rack travel in mm : 11.00...12.00
Rack travel in mm : 3.70
Speed rpm : 480...520
Rack travel in mm : <0.01
Speed rpm : 540...615

CONSTANT REGULATION

Speed rpm : 800...1300

BREAKAWAY

1st version
Speed rpm : 1325...1380

Remarks:

* = Bank A = cyl. 1-3-6-8

** = Bank B = cyl. 2-4-5-7

Note mounting and test instructions
KH/VSK 40 JP 1.

Set with adjusting gauge KDEP 1533.

Inlet pressure 3 bar with overflow
quantity 10...12 l/min (measured at
return).

Instead of overflow valve, connect a
hand valve of minimum nominal size
1/2" into the return.

Overflow quantity as well as inlet
pressure must be observed precisely.
Note further that the calibrating-

oil temperature 42°...45° C must be
measured at the return.

Set intermediate-speed stop at
00 l/min

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 j
Edition : 3.3.89
Replaces : 7.86
Test oil : ISO-4113
Combination no. : 9 400 230 047
Injection pump
Pump designation : PES6A95D410RS2561
Governor
Governor design. : RSV600...1100A2B2049
-1L

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness : 6,00X2,00X600
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 1.85...1.95
: (1.80...2.00)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 10.70...10.80
Del.quantity cm³/ : 10.7...10.9
100 s: (10.4...11.2)
Spread cm³ : 0.3
100 s: (-)

2nd speed rpm : 600
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 1.2...1.6
100 s: (1.0...1.8)
Spread cm³ : 0.3
100 s: (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...1.00

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 107.0...109.0
1000 : (104.0...112.0)
Spread cm³ : 3.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 44...52

Testing:
1st rack travel in: 9.70
Speed rpm : 1145...1155
2nd rack travel in: 4.00
Speed rpm : 1200...1230
4th rack travel in: 1300
Speed rpm : 0.30...1.70

LOW IDLE 1
Control lever

position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 600
Rack travel in mm : 4.6

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 600
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 720...780

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.70...10.80
2nd speed rpm : 950
Rack travel in m: 11.45...11.65

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ : 120.0...124.0
1000 s: (118.0...126.0)
Spread cm³ : 3.0
1000 s: (-)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 9.70
Speed rpm : 1145...1155

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...185.0
1000 s: (-)
Rack travel in mm : 21.00

HIGH IDLE

1st version
Speed rpm : 1200
Rack travel in mm : 19.0...29.0
Del.quantity cm³/ : (-)

LOW IDLE

Speed rpm : 600
Del.quantity cm³/ : 12.0...16.0
1000 s: (-)

Remarks:

: JOHN DEERE # RE10473
Start-of-delivery mark = 15.5° after
start of delivery cyl. 1.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 b 6
Edition : 3.3.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 230 092
Injection pump
Pump designation : PES6A100D320/3RS2691
-2
Governor
Governor design. : RQV350...1100AB1216R

Customer-spec. information
Customer : CDC

Engine : 6 CT 8.3

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6,00X2,00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100
Rack travel in mm : 12.70...12.80
Del.quantity cm3/ : 12.7...12.9
100 s: (12.5...13.1)
Spread cm3 : 0.35
100 s: (0.6)

2nd speed rpm : 350
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 1.6...2.0
100 s: (-)
Spread cm3 : 0.35
100 s: (0.55)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 600
Del.quantity : 127.0...129.0
1000 : (125.0...131.0)
Spread cm3 : 3.5
1000 : (6.0)

RATED SPEED

1st version
Control lever
position degrees: 61.5...66.5

Testing:
1st rack travel in: 11.70
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 12...20
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.8
Speed rpm : 350
Rack travel in mm : 5.70...5.90

Rack travel in mm : 2.00
Speed rpm : 525...585

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.70...12.80
2nd speed rpm : 850
Rack travel in m: 12.90...13.10
3rd speed rpm : 750
Rack travel in m: 13.10...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 340
Rack travel mm : 12.35...12.45

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 190
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 600
Speed rpm : 750
Del.quantity cm3/ : 133.0...137.0
1000 s: (131.0...139.0)
Spread cm3 : 3.5
1000 s: (6.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 69.5...73.5
1000 s: (67.5...75.5)
Spread cm3 : 3.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 160.0
1000 s: (155.0)
Rack travel in mm : 21.00

LOW IDLE

Speed rpm : 350
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.5
1000 s: (-)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 9° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 j
Edition : 01.09.88
Replaces : 15.6.88
Test oil : ISO-4113

Combination no. : 9 400 230 096

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV425...900A4C2213-1R
Governor no. : 9 420 234 136

Customer-spec. information
Customer : C.D.C.

Engine : 6 CTI-8.3 L

1st version kW : 154.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
(2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 830

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 13.5...13.7

100 s: (13.3...13.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 425.0
Rack travel in mm : 5.5...5.7
Del.quantity cm3/ : 1.2...1.6
100 s: (0.9...1.8)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 830
Del.quantity : 135.0...137.0
1000 : (133.0...139.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 12.40
Speed rpm : 925...935

2nd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1030
Speed rpm : 0.30...1.40

LOW IDLE 1
Control Lever
position degrees: 24...32
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.0

Testing:
Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 435...495

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.40
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 5.50...5.70
Del.quantity cm3/ : 12.0...16.0
1000 s: (9.5...18.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:
: C.D.C # 3908844

Set shutoff stop 1.5...2.0 mm before
shutoff.

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 j 1
 Edition : 15.06.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 9 400 230 096DA
 Injection pump
 Pump designation : PES6A100D320/3RS2691
 EP type number : 9 410 230 025
 Governor
 Governor design. : RSV425...900A4C2213-1R
 Governor no. : 9 420 234 136
 Cust. part no. : 3908845
 Customer-spec. information
 Customer : C.D.C.

Engine : 6CT-I

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 047
 Inlet press., bar : 1.50
 Test nozzle holder
 assembly : 1 688 901 017
 Opening
 pressure, bar : 207...210
 Orifice plate
 diameter mm : 0,6
 Test lines : 1 680 750 014
 Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750
 Rack travel in mm : 14.00...14.10
 Del.quantity cm3/ : 14.2...14.4
 100 s: (14.0...14.6)
 Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 425.0
 Rack travel in mm : 6.0...6.2
 Del.quantity cm3/ : 1.8...2.2
 100 s: (1.5...2.4)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3
 Speed rpm : 800
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 750
 Del.quantity : 142.5...144.5
 1000 : (140.5...146.5)
 Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 37...45

Testing:
 1st rack travel in: 13.00

Speed rpm : 795...805
2nd rack travel in: 4.00
Speed rpm : 825...855
3rd rack travel in: 4.00
Speed rpm : 830...860

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack trave: 19.00
Speed rpm : 425
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 440...500

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.00
Speed rpm : 795...805

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

:

Start-of-delivery mark at 10° cam
rotation angle after start of delivery,
cylinder 1

Adjust stop lever to 0.5...1.0 mm
before stop.

APPLICATION

Generator

B26

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 k
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 230 102
Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1050A0C2216
R
Governor no. : 9 420 234 146

Customer-spec. information
Customer : C.D.C.

Engine : 6 CTA 8.3

1st version kW : 141.7
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

B27

Prestroke mm : 2.80...2.90
(2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050
Rack travel in mm : 11.10...11.20
Del.quantity cm3/ : 10.0...10.2
100 s: (9.8...10.4)
Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 1.8...2.2
100 s: (1.5...2.4)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Del.quantity : 100.5...102.5
1000 : (98.5...104.5)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:

1st rack travel in: 10.10
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...34
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 495...555

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.10...11.20
2nd speed rpm : 750
Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 126.0...130.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)

Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

:

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Note remarks

Combination no. : 9 400 230 103

Customer-spec. information
Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 156.6
Rated speed : 2200

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 27...29

```
Prestroke mm      : 2.80...2.90
                  : (2.75...2.95)
Rack travel in mm : 10.50
Firing order      : 1- 5- 3- 6- 2- 4
```

Phasing : 0-60-120-180-240-300

Tolerance \pm ° : 0.50 (0.75)

Time to cyl. no. : 1

1st speed rpm : 1100

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.8...2.2
100 s: (1.5...2.4)

Spread cm³ : 0.3
 100 s: (0.5)

(B) Setting of injection pump
with governor

1st speed	rpm	: 1100
travel mm		: 7.70...7.70
2nd speed	rpm	: 1150
travel mm		: 8.00...8.60
3rd speed	rpm	: 1290
travel mm		: 9.50...10.10
4th speed	rpm	: 350
travel mm		: 1.20...1.60
5th speed	rpm	: 600
travel mm		: 3.90...4.50

```
Control-lever position
Degree: -1
Speed      rpm : 1290
Rack travel in mm : 6.70...9.30
```

FULL LOAD DELIV. AT FULL LOAD STOP

```
1st version
Speed      rpm   : 1100
Aneroid pressure h: 900
```

Del.quantity : 130.5...132.5
1000 : (128.5...134.5)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 11.80
Speed rpm : 1150...1160
2nd rack travel in: 4.00
Speed rpm : 1265...1295
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 9...17

Testing:

Speed rpm : 250
Minimum rack travel: 8.00
Speed rpm : 350
Rack travel in mm : 5.60...5.80
Rack travel in mm : 2.00
Speed rpm : 420...480

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.30
2nd pressure hPa : 535
Rack travel in m: 12.10...12.20
3rd pressure hPa : 390
Rack travel in m: 10.70...11.10

START CUT-OUT

Speed 1/min : 260 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

CO2

Speed rpm : 500
Del.quantity cm³/ : 79.0...83.0
1000 s: (77.0...85.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.80
Speed rpm : 1150...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 165.0...185.0
1000 s: (160.0...190.0)
Rack travel in mm : 15.30...15.70

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.60...5.80
Del.quantity cm³/ : 18.0...22.0
1000 s: (15.5...24.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: CDC # 3912645

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark is at 7° after
start of delivery.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 k 1
Edition : 15.06.88
Replaces : -
Test oil : ISO-4113

Combination no. : 9 400 230 106

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 025
Governor
Governor design. : RSV400...1050A0C2216
-1R
Governor no. : 9 420 234 154

Customer-spec. information
Customer : C.D.C.

Engine : 6 CT 8.3

1st version kW : 141.7
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

C03

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50...10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0
Rack travel in mm : 5.8...6.0
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 115.0...117.0

1000 : (113.0...119.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 42...50

Testing:

1st rack travel in: 10.90
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1145...1175
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 23...31
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.4

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 5.80...6.00
Rack travel in mm : 2.00
Speed rpm : 470...530

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.90...12.00
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 134.0...138.0
1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (132.0...158.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.80...6.00
Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 6
Edition : 20.12.88
Replaces : 30.9.88
Test oil : ISO-4113

Combination no. : 9 400 230 109

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type number : 9 410 230 030
Governor
Governor design. : RSV450...1100A2C2190
-21R
Governor no. : 9 420 234 164

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kW : 117.1
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

C05

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.20...10.30

Del.quantity cm3/ : 8.9...9.1

100 s: (8.7...9.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 89.0...91.0

1000 : (87.0...93.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 29...37
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 525...585

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 10.80...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 90.5...94.5
1000 s: (88.5...96.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

C06

Del.quantity cm3/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3911541

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 7
Edition : 20.12.88
Replaces : 30.9.88
Test oil : ISO-4113

Combination no. : 9 400 230 110

Injection pump
Pump designation : PES6A100D320/3RS2691
-4

EP type number : 9 410 230 030
Governor
Governor design. : RSV450...1100ADC2190
-22R

Governer no. : 9 420 234 173

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kW : 150.6
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

C07

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 11.8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 450.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 118.5...120.5

1000 : (116.5...122.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:
1st rack travel in: 11.10
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1
Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:
Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 500...560

TORQUE CONTROL
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750
Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm³/ : 133.0...137.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450
Rack travel in mm : 5.70...5.90

Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3911542
Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a 8
Edition : 20.12.88
Replaces : 30.9.88
Test oil : ISO-4113

Combination no. : 9 400 230 111

Injection pump
Pump designation : PES6A100D320/3RS2691
-4

EP type number : 9 410 230 030
Governor
Governor design. : RSV450...1100AOC2190
-23R

Governor no. : 9 420 234 174

Customer-spec. information
Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

C09

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 10.50
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Phasing :
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 450.0
Rack travel in mm : 5.7...5.9
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.20
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1210...1240
3rd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 31...39
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 535...595

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm³/ : 110.5...114.5
1000 s: (108.5...116.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 135.0...155.0
1000 s: (130.0...160.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450

C10

Rack travel in mm : 5.70...5.90
Del.quantity cm³/ : 16.0...20.0
1000 s: (13.5...22.5)
Spread cm³ : 3.50
1000 s: (5.50)

Remarks:

: C.D.C. # 3911545

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Limit shutoff stop screw to 1.0 mm.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 5,9 b
 Edition : 20.12.88
 Replaces : 30.9.88
 Test oil : ISO-4113

Combination no. : 9 400 230 120

Injection pump
 Pump designation : PES6A95D320RS2750
 EP type number : 0 410 896 906
 Governor
 Governor design. : RGV350...1350AB1236R
 Governor no. : 9 420 231 021

Customer-spec. information
 Customer : NAVISTAR

Engine : MARS DTA360

1st version kW : 134.0
 Rated speed : 2700

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
 assembly : 1 688 901 110

Opening
 pressure, bar : 250...253

Orifice plate
 diameter mm : 0,5

Test Lines : 1 680 750 008

Outside diameter
 x Wall thickness
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
 : (2.70...2.90)
 Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1350

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm3/ : 1.5...1.9
 100 s: (1.2...2.1)
 Spread cm3 : 0.3
 100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400
 travel mm : 8.50...8.50
 2nd speed rpm : 1500
 travel mm : 9.30...9.50
 3rd speed rpm : 350
 travel mm : 1.00...1.00
 4th speed rpm : 450
 travel mm : 1.90...2.40
 5th speed rpm : 250
 travel mm : 0.10...0.50

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1535
 Rack travel in mm : 6.70...9.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1350
 Aneroid pressure h: 900

Del.quantity : 73.0...75.0
1000 : (71.0...77.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 45...53

Testing:
1st rack travel in: 10.10
Speed rpm : 1415...1445
2nd rack travel in: 4.00
Speed rpm : 1530...1540
4th rack travel in: 1600
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 250
Minimum rack travel: 7.80
Speed rpm : 350
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION
Speed rpm : 350...500

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.10...11.20

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 250
Rack travel in m: 10.00...10.10
3rd pressure hPa : 190
Rack travel in m: 9.30...9.70

START CUT-OUT

Speed 1/min : 290 (300)

FUEL DELIVERY CHARACTERISTICS

1st version

C12

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 57.0...61.0
1000 s: (55.0...63.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1415...1445

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (120.0...150.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 15.0...19.0
1000 s: (12.5...21.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Limit shutoff stop screw to 1.0 mm.

Start-of-delivery mark is at start of
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1 a3
Edition : 20.12.88
Replaces : 30.9.88
Test oil : ISO-4113

Combination no. : 9 400 231 039

Injection pump
Pump designation : PES6P110A720RS370
EP type number : 0 412 016 052
Governor
Governor design. : RSV450...1050POA465
Governor no. : 9 420 234 180

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619A

1st version kW : 201.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 10.50

C13

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.40...12.50

Del.quantity cm3/ : 17.4...17.6

100 s: (17.1...17.9)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 450.0

Rack travel in mm : 6.0...6.2

Del.quantity cm3/ : 1.9...2.5

100 s: (1.7...2.7)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 900

Del.quantity : 174.0...176.0

1000 : (171.0...179.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 11.40

Speed rpm : 1090...1100

2nd rack travel in: 4.00

Speed rpm : 1220...1250
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 25...33
Setting point w/out bumper spring
Speed rpm : 450
Rack travel in mm : 5.6

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 450
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 600...660

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.40...12.50
2nd speed rpm : 650
Rack travel in m: 13.60...13.80

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.60...13.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.50...10.70
2nd pressure hPa : 280
Rack travel in m: 11.70...11.80
3rd pressure hPa : 480
Rack travel in m: 12.80...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 650
Del.quantity cm3/ : 198.5...201.5
1000 s: (195.0...205.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : -
1000 s: (123.0...133.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 170.0...210.0
1000 s: (165.0...215.0)
Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version
Speed rpm : 1170
Rack travel in mm : 7.40...7.60

LOW IDLE

Speed rpm : 450
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 19.0...25.0
1000 s: (17.0...27.0)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE29146

Starting/full-load transition speed
from holding magnet = 400 1/min.

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

Screw in torque-control-spring
retainer to make contact at 650 l/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 g 3
Edition : 20.12.88
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 9 400 231 084

Injection pump
Pump designation : PES6P110A720RS3083-1
EP type number : 9 410 231 027
Governor
Governor design. : RSV425...1100P2A489
Governor no. : 9 420 234 138

Customer-spec. information
Customer : JOHN DEERE

Engine : 6466 A

1st version kW : 161.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 456 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
: (3.40...3.60)
Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.00...12.10

Del.quantity cm³/ : 13.7...13.9

100 s: (13.4...14.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 425.0

Rack travel in mm : 6.4...6.6

Del.quantity cm³/ : 1.0...1.5

100 s: (0.8...1.8)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 900

Del.quantity : 137.5...139.5

1000 : (134.5...142.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control Lever

position degrees: 46...54

Testing:

1st rack travel in: 11.00

Speed rpm : 1155...1165

2nd rack travel in: 4.00

Speed rpm : 1230...1260
3rd rack travel in: 4.00
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 425
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 425
Rack travel in mm : 6.40...6.60
Rack travel in mm : 2.00
Speed rpm : 655...715

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 12.00...12.10
2nd speed rpm : 700
Rack travel in m: 13.10...13.30

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 11.10...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : 200
Rack travel in m: 11.40...11.80
2nd pressure hPa : 375
Rack travel in m: 12.50...12.60
3rd pressure hPa : 900
Rack travel in m: 13.10...13.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 155.5...159.5
1000 s: (152.5...162.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : -
1000 s: (102.0...112.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1155...1165

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (145.0...175.0)
Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version
Speed rpm : 1200
Rack travel in mm : 7.30...7.50

LOW IDLE

Speed rpm : 425
Rack travel in mm : 6.40...6.60
Del.quantity cm³/ : 10.5...15.5
1000 s: (8.0...18.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE23748

Adjustment without torque-control
spring retainer with 1 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Starting/full-load transition speed
from holding magnet = 400 1/min.

Start-of-delivery mark 13° cam angle
after start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 9,4 a 7
Edition : 6.3.89
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 231 115
Injection pump
Pump designation : PES8P100A921/5RS286
Governor
Governor design. : RQV350...1200PA643-1
K

Customer-spec. information
Customer : IHC

Engine : DVT 800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 040

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 017

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,7

Test lines : 9 681 230 713

Outside diameter
x Wall thickness
x Length mm : 6,35X1,57X1025,4

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.70...2.80
: (2.65...2.85)
Rack travel in mm : 9.50
Firing order : 1-8-4-2-7-3-6-5

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 9.50...9.60
Del.quantity cm3/ : 10.5...10.7
100 s : (-)
Spread cm3 : 0.4
100 s : (-)

2nd speed rpm : 350
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 1.9...2.3
100 s : (-)
Spread cm3 : 0.5
100 s : (-)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Aneroid pressure h : 930
Del.quantity : 105.5...107.5
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 59.5...64.5

Testing:
1st rack travel in: 8.50
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1300...1330
4th rack travel in: 1370
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10.5...15.5
Setting point w/out bumper spring
Speed rpm : 350
Rack travel in mm : 5.0
Speed rpm : 350
Rack travel in mm : 4.80...5.20
Rack travel in mm : 2.00

Speed rpm : 650...710
Speed rpm : 285
Maximum rack travel: 7.00

CONSTANT REGULATION

Speed rpm : 400...460

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.50...9.60

2nd speed rpm : 900

Rack travel in m: 10.75...10.85

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 800

Pressure hPa : 160 *

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 930

Speed rpm : 900

Del.quantity cm³/ : 117.0...123.0

1000 s: (-)

Spread cm³ : 4.0

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 800

Del.quantity cm³/ : 82.0...90.0

1000 s: (-)

Spread cm³ : 4.0

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.50

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 199.0...239.0

1000 s: (-)

LOW IDLE

Speed rpm : 350

C18

Rack travel in mm : 19.0...23.0
Del.quantity cm³/ : (-)

Remarks:

* Start of LDA (manifold-pressure
compensator) movement

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 7,6 g 4
 Edition : 20.12.88
 Replaces : 17.10.88
 Test oil : ISO-4113
 Combination no. : 9 400 231 196
 Injection pump
 Pump designation : PES6P110A720RS3083
 EP type number : 9 410 231 009
 Governor
 Governor design. : RSV400...1050P2A488-3
 Governor no. : 9 420 234 130

Customer-spec. information
 Customer : JOHN DEERE

Engine : 6466 AF

1st version kW : 167.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X3.00X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 3.45...3.55
 : (3.40...3.60)

Rack travel in mm : 10.50
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.60...12.70

Del.quantity cm³/ : 14.9...15.1

100 s: (14.7...15.4)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 400.0

Rack travel in mm : 6.6...6.8

Del.quantity cm³/ : 1.3...1.8

100 s: (1.1...2.1)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 1200

Del.quantity : 149.5...151.5

1000 : (147.0...154.0)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.60

Speed rpm : 1095...1105

2nd rack travel in: 4.00
Speed rpm : 1190...1200
3rd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1300
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 6.2

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 400
Rack travel in mm : 6.60...6.80
Rack travel in mm : 2.00
Speed rpm : 660...720

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.60...12.70
2nd speed rpm : 700
Rack travel in m: 13.80...14.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 13.80...14.00

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.30...10.50
2nd pressure hPa : 665
Rack travel in m: 12.90...13.00
3rd pressure hPa : 415
Rack travel in m: 11.20...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200
Speed rpm : 700
Del.quantity cm³/ : 180.0...185.0
1000 s: (177.5...187.5)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 91.0...95.0
1000 s: (88.0...98.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.60
Speed rpm : 1095...1105

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 156.0...176.0
1000 s: (152.0...180.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400
Rack travel in mm : 6.60...6.80
Del.quantity cm³/ : 13.5...18.5
1000 s: (11.0...21.0)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE25013

Adjustment without torque-control
spring retainer with 0,5 mm less
control-rod travel. Increase in
full-load delivery with torque-control
spring retainer.

Start-of-delivery mark = 12,75° after
start of delivery cyl. 1.

Starting/full-load transition speed
from holding magnet = 400 1/min.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DEE 10,1a12
Edition : 20.12.88
Replaces : -
Test oil : ISO-4113
Combination no. : 9 400 231 214
Injection pump
Pump designation : PES6P110A720RS370
EP type number : 0 412 016 052
Governor
Governor design. : RSV500...900PO/452-1
Governor no. : 9 420 234 123

Customer-spec. information
Customer : JOHN DEERE

Engine : 6619 A

1st version kW : 164.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X3.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.75...2.85
: (2.70...2.90)
Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 16.0...16.2

100 s: (15.7...16.4)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 500.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.9...2.5

100 s: (1.6...2.7)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del.quantity : 160.0...162.0

1000 : (157.5...164.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.60

Speed rpm : 945...955

3rd rack travel in: 6.20

Speed rpm : 985...1015
4th rack travel in: 1100
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 21...29
Setting point w/out bumper spring
Speed rpm : 500
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.00
Speed rpm : 500
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 610...670

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.60...11.70
2nd speed rpm : 650
Rack travel in m: 12.40...12.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 550
Pressure hPa : 900
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 550

1st pressure hPa : -
Rack travel in m: 10.90...11.10
2nd pressure hPa : 420
Rack travel in m: 11.40...11.50
3rd pressure hPa : 575
Rack travel in m: 12.30...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 650
Del.quantity cm³/ : 176.5...179.5
1000 s: (174.0...182.0)
Aneroid pressure h: -
Speed rpm : 550
Del.quantity cm³/ : 143.0...147.0
1000 s: (140.0...150.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 945...955

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (185.0...215.0)
Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version
Speed rpm : 1000
Rack travel in mm : 6.10...6.30
Del.quantity cm³/ : 23.5...28.5
1000 s: (21.0...31.0)

LOW IDLE

Speed rpm : 500
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 19.0...25.0
1000 s: (16.5...27.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: JOHN DEERE # RE21153

Start-of-delivery mark at control-rod
travel 10.5 mm and 15° after start of
delivery.

Screw in torque-control-spring
retainer to make contact at 650 l/min.

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : ONA 3,4 C1
Edition : 03.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/10F1500 R209-3
Type number : 0 460 406 062

Customer-specific information
Customer : ONAN

Engine : L634TA HD

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.2
(from BDC) : ±0.02(0.04)

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value mm: 3.8...4.2

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 800
Setting value bar: 5.1...5.7

Full-load del. with charge press.:

Speed 1/min: 1400
Charge press. hPa: 800
Del.quantity cm3/
1000H.: 56.5...57.5
Dispersion cm3/ : 3.0
1000H : -

Full-load del. w/out charge press.:

Speed 1/min : 700
Del.quantity cm3/
1000H.: 39.5...40.5

Low-idle speed regulation:

Speed 1/min: 400
Charge press. hPa: -
Del.quantity cm3/
1000H.: 13.0...17.0
Dispersion cm3/ : 3.0
1000H.: -

Full-load speed regulation:

Speed 1/min: 1640
Charge press. hPa: 800
Del.quantity cm3/
1000H: 10.0...14.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 37.0

Inspection-pump test specifications Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
Charge press. hPa: 800
TD travel mm: 0.9...1.7
mm: (0.6...2.0)
2nd speed 1/min: 1100
Charge press. hPa: 800
TD travel mm: 2.2...2.8
mm: (1.8...3.2)
3rd speed 1/min: 1500
Charge press. hPa: 800
TD travel mm: 3.8...4.2
mm: (3.3...4.7)

Supply-pump pressure characteristic:

1st speed 1/min: 700
Charge press. hPa: 800

Supply-pump
 pressure bar: 2.3...2.9
 2nd speed 1/min: 1100
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 3.8...4.4
 3rd speed 1/min: 1500
 Charge press. hPa: 800
 Supply-pump
 pressure bar: 5.1...5.7

Overflow quantity at overflow valve:

1st speed 1/min: 700
 Charge press. hPa: 800
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 1500
 Charge press. hPa: 800
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
 Charge-air pressure-setting
 point hPa: 400
 LDA stroke mm: 6,5
 Del.quantity cm³/: 47.5...48.5
 1000H.: (45,7...50,3)
 2nd speed 1/min: 1700
 Charge press. hPa: 800
 Del.quantity cm³/: 0.0...6.0
 1000H.: -
 3rd speed 1/min: 1640
 Charge press. hPa: 800
 Del.quantity cm³/: 10.0...14.0
 1000H.: (8.0...16.0)
 4th speed 1/min: 1580
 Charge press. hPa: 800
 Del.quantity cm³/: 33.0...41.0
 1000H.: -
 5th speed 1/min: 1500
 Charge press. hPa: 800
 Del.quantity cm³/: 53.0...56.0
 1000H.: (52.2...56.8)
 6th speed 1/min: 1400
 Charge press. hPa: 800
 Del.quantity cm³/: 56.5...57.5
 1000H.: (54.7...59.3)
 7th speed 1/min: 700
 Charge press. hPa: 800
 Del.quantity cm³/: 56.0...59.0
 1000H.: -
 8th speed 1/min: 700
 Charge press. hPa: -
 Del.quantity cm³/: 39.5...40.5
 1000H.: (37.7...42.3)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1500
 Del.quantity cm³/: 0..3
 1000H.: -

Electr. shutoff:

Speed 1/min: 350
 ELAB volt: -
 Del.quantity cm³/: 0.0...3.0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 350
 Del.quantity cm³/: 26.5...33.5
 1000H.: -
 2nd speed 1/min: 400
 Del.quantity cm³/: 13,0..17,0
 1000H.: (11,0..18,0)
 3rd speed 1/min: 450
 Del.quantity cm³/: 0,0...6,0
 1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 220
 Del.quantity cm³/: -
 ind. 1000H: 37.0

2nd speed 1/min: 300
 Del.quantity cm³/: -
 max. 1000H : 37.0

Shutoff electromagnet:

Cut-in
 min. voltage : 10.0
 Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5.6...6.0
MS	mm	: 0.6...1.0
SVS max.	mm	: 1.9
XK	mm	: 20,0...22,0
XL	mm	: 12,4...15,8

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CAS 3,9L
Edition : 31.01.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1100 R310-1
Type number : 0 460 424 043

Customer-specific information
Customer : CASE

Engine : 4BT -3.9

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0,3
(from BDC): $\pm 0,02(0,04)$

Start of delivery block
Piston stroke mm: 1,55
mm: $\pm 0,02(0,06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

C25

Setting value mm: 3,3...3,7

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 4,5...5,1

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 82,5...83,5
Dispersion cm3/ : 4,0
1000H : (4,5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 49,5...50,5

Low-idle speed regulation:

Speed 1/min: 400
Charge press. hPa: -
Del.quantity cm3/
1000H.: 8,5...14,5
Dispersion cm3/ : 5,5
1000H.: (7,0)

Full-load speed regulation:

Speed 1/min: 1170
Charge press. hPa: 1000
Del.quantity cm3/
1000H: 52,0...58,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 45,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 1,6...2,4
mm: (1,3...2,7)
2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 3,3...3,7
mm: (2,8...4,2)
3rd speed 1/min: 1100

Charge press. hPa: 1000
TD travel mm: 4,5...5,3
mm: (4,2...5,6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3,4...4,0
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 4,5...5,1
3rd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 5,9...6,5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 650
Charge-air pressure-setting point hPa: 325
LDA stroke mm: 5,0
Del.quantity cm³/: 72,0...73,0
1000H.: (68,5...76,5)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Del.quantity cm³/: 0,0...3,0
1000H.: -
3rd speed 1/min: 1250
Charge press. hPa: 1000
Del.quantity cm³/: 0,0...15,0
1000H.: -
4th speed 1/min: 1200
Charge press. hPa: 1000
Del.quantity cm³/: 15,0...55,0
1000H.: -
5th speed 1/min: 1170
Charge press. hPa: 1000
Del.quantity cm³/: 52,0...58,0
1000H.: (49,0...61,0)
6th speed 1/min: 1100
Charge press. hPa: 1000
Del.quantity cm³/: 67,0...69,0
1000H.: (65,5...71,5)
7th speed 1/min: 900
Charge press. hPa: 1000

Del.quantity cm³/: 74,0...79,0
1000H.: (72,5...80,5)
8th speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/: 82,5...83,5
1000H.: (80,0...86,0)
9th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 85,0...93,0
1000H.: -
10th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 49,5...50,5
1000H.: (46,0...54,0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del.quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 33,5...41,5
1000H.: -
2nd speed 1/min: 400
Del.quantity cm³/: 8,5...14,5
1000H.: (6,5...16,5)
3rd speed 1/min: 550
Del.quantity cm³/: 0,0...4,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Charge press. hPa: -
Del.quantity cm³/: -
ind. 1000H.: 75,0

2nd speed 1/min: 400
Charge press. hPa: -
Del.quantity cm³/: -
max. 1000H.: 75,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5,0...5,4
MS	mm	: 0,8...1,2
SVS max.	mm	: 1,3
XK	mm	: 18,1...20,8
XL	mm	: 9,9...13,3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 3,9 N11
Edition : 02.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/12F1050 R226-10
Type number : 0 460 424 053

Customer-specific information
Customer : CDC

Engine : 4 BT 390 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): ± 0.02

Start of delivery block
Piston stroke mm: 1.8
mm: $\pm 0.02(0.06)$

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Setting value mm: 2.3...2.7

Supply-pump pressure:

Speed 1/min: 900
Setting value bar: 4.1...4.7

Full-load del. w/out charge press.:

Speed 1/min : 900
Del.quantity cm3/
1000H.: 69.0...70.0
Dispersion cm3/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 10.0...12.0
Dispersion cm3/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1110
Del.quantity cm3/
1000H.: 49.0...55.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 70.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 750
TD travel mm: 1.3...2.1
mm: (1.0...2.4)
2nd speed 1/min: 900
TD travel mm: 2.3...2.7
mm: (1.8...3.2)
3rd speed 1/min: 1050
TD travel mm: 2.8...3.6
mm: (2.5...3.9)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.3...2.9
2nd speed 1/min: 900
Supply-pump
pressure bar: 4.1...4.7
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.8...5.4

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200
Del.quantity cm3/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1180
Del.quantity cm3/: 0.0...15.0
1000H.: -
3rd speed 1/min: 1140
Del.quantity cm3/: 15.0...55.0
1000H.: -
4th speed 1/min: 1110
Del.quantity cm3/: 49.0...55.0
1000H.: (46.0...58.0)
5th speed 1/min: 1050
Del.quantity cm3/: 66.0...69.0
1000H.: (64.5...70.5)
6th speed 1/min: 900
Del.quantity cm3/: 69.0...70.0
1000H.: (66.5...72.5)
7th speed 1/min: 750
Del.quantity cm3/: 72.0...76.0
1000H.: (70.0...78.0)
8th speed 1/min: 500
Del.quantity cm3/: 72.0...80.0
1000H.: (70.0...82.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm3/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm3/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm3/: 10.0...12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 500

DD1

Del.quantity cm3/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del.quantity cm3/: -
ind. 1000H: 80.0

2nd speed 1/min: 240
Del.quantity cm3/: -
max. 1000H : 80.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5.0...5.4
MS	mm	: 1.1...1.5
SVS max.	mm	: -
XK	mm	: -
XL	mm	: -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : STE 6,5K4
Edition : 10.03.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1200 R235
Type number : 0 460 426 079
Customer Part-No. :

Customer-specific information
Customer : STEYR

Engine : WD 612-04

Power k: 100

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
pressure bar : 172...175

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Setting value mm: 2,2...2,6

Supply-pump pressure:

Speed 1/min: 1100
Setting value bar: 6,1...6,7

Full-load del. w/out charge press.:

Speed 1/min : 1000
Del.quantity cm3/
1000H.: 95,0...96,0
Dispersion cm3/: 3,5
1000H.: -

Low-idle speed regulation:

Speed 1/min: 325
Del.quantity cm3/
1000H.: 18,0...22,0
Dispersion cm3/: 3,5
1000H.: (4,5)

Full-load speed regulation:

Speed 1/min: 1250
Del.quantity cm3/
1000H.: 61,0...67,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 90,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
TD travel mm: 0,8...1,4
mm: (0,4...1,8)
2nd speed 1/min: 1100
TD travel mm: 2,2...2,6
mm: (1,7...3,1)
3rd speed 1/min: 1200
TD travel mm: 2,7...3,3
mm: (2,3...3,7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 3,5...4,1
2nd speed 1/min: 1100
Supply-pump
pressure bar: 6,1...6,7
3rd speed 1/min: 1200
Supply-pump
pressure bar: 6,6...7,2

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1200
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery quant. and breakaway char.:

1st speed 1/min: 1350
Del.quantity cm³/: 0,0...3,0
1000H.: -
2nd speed 1/min: 1300
Del.quantity cm³/: 26,0...34,0
1000H.: (25,0...35,0)
3rd speed 1/min: 1250
Del.quantity cm³/: 61,0...67,0
1000H.: (59,0...69,0)
4th speed 1/min: 1200
Del.quantity cm³/: 90,5...93,5
1000H.: (89,0...95,0)
5th speed 1/min: 1000
Del.quantity cm³/: 95,0...96,0
1000H.: (92,5...98,5)
6th speed 1/min: 700
Del.quantity cm³/: 88,8...91,2
1000H.: (86,3...93,7)
7th speed 1/min: 500
Del.quantity cm³/: 82,5...85,5
1000H.: (80,3...87,7)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1200
Del.quantity cm³/: -
1000H.: -

Idle delivery:

1st speed 1/min: 325
Del.quantity cm³/: 18,0...22,0
1000H.: (15,0...25,0)
2nd speed 1/min: 370
Del.quantity cm³/: 1,0...7,0
1000H.: (0,0...9,0)
3rd speed 1/min: 400
Del.quantity cm³/: 0,0...3,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 170
Del.quantity cm³/: -
ind. 1000H.: 90,0

2nd speed 1/min: 350
Del.quantity cm³/: -
max. 1000H.: 82,0

3rd speed 1/min: 250
Del.quantity cm³/: -
1000H.: -

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5,6...6,0
SVS max. mm : 4,0

Remarks:

:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 6,0 C
Edition : 03.02.89
replaces : 29.07.87
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1300 R240
Type number : 0 460 426 084

Customer-specific information
Customer : PERKINS

Engine : T6 60 CC TRU

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 020

Opening
pressure bar : 172...175

Perforated-plate
diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.25
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.0
mm: ± 0.02

Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 1000

DO4

Setting value mm: 1.3...1.7

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1000
Setting value bar: 6.5...7.1

Full-load del. with charge press.:

Speed 1/min: 700
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 99.0...100.0
Dispersion cm³ : 5.0
1000H : -

Full-load del. w/out charge press.:

Speed 1/min : 700
Del.quantity cm³/
1000H.: 87.0...88.0

Low-idle speed regulation:

Speed 1/min: 300
Charge press. hPa: -
Del.quantity cm³/
1000H.: 16.5...20.5
Dispersion cm³ : 5.0
1000H.: -

Full-load speed regulation:

Speed 1/min: 1450
Charge press. hPa: 1000
Del.quantity cm³/
1000H: 47.0...53.0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm³/1000H.: 120.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 0.4...1.2
mm: (0.1...1.5)
2nd speed 1/min: 1100
Charge press. hPa: 1000
TD travel mm: 1.3...1.7
mm: (0.8...2.2)

3rd speed 1/min: 1300
Charge press. hPa: 1000
TD travel mm: 2.0...2.8
mm: (1.7...3.1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.9...4.5
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 6.5...7.1
3rd speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump pressure bar: 7.3...7.9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 450
LDA stroke mm: 6.3
Del.quantity cm³/: 95.0...96.0
1000H.: (92.5...98.5)
2nd speed 1/min: 1550
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...7.0
1000H.: -
3rd speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm³/: 13.5...21.5
1000H.: (10.5...24.5)
4th speed 1/min: 1450
Charge press. hPa: 1000
Del.quantity cm³/: 47.0...53.0
1000H.: (44.0...56.0)
5th speed 1/min: 1300
Charge press. hPa: 1000
Del.quantity cm³/: 95.0...98.0
1000H.: (93.5...99.5)
6th speed 1/min: 1000
Charge press. hPa: 1000
Del.quantity cm³/: 99.5...102.5
1000H.: (98.0...104.0)
7th speed 1/min: 700

D05

Charge press. hPa: 1000
Del.quantity cm³/: 99.0...100.0
1000H.: (96.5...102.5)
8th speed 1/min: 700
Charge press. hPa: -
Del.quantity cm³/: 87.0...88.0
1000H.: (84.5...90.5)
9th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 80.0...83.0
1000H.: (78.5...84.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1300
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 300
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 300
Del.quantity cm³/: 16.5...20.5
1000H.: (13.5...23.5)
2nd speed 1/min: 350
Del.quantity cm³/: 4.5...10.5
1000H.: (2.5...12.5)
3rd speed 1/min: 400
Del.quantity cm³/: 0.0...2.6
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Charge press. hPa: -
Del.quantity cm³/: -
ind. 1000H: 95.0

2nd speed 1/min: 230
Charge press. hPa: -
Del.quantity cm³/: -
max. 1000H : 85.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K	mm	:	-
KF	mm	:	K-OT
MS	mm	:	0.6...1.0
SVS max.	mm	:	3.2
XK	mm	:	17.0...19.0
XL	mm	:	12.8...16.2

Remarks:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : PER 6.0 C2
 Compl. date: : -
 Edition : 03.02.89
 replaces : 19.04.88
 Calibrating oil : ISO 4113

Injection pump : VE 6/12F1300 R240-2
 Type number : 0 460 426 094

Customer-specific information
 Customer : PERKINS

Engine : T6 60 CC TRU

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
 assembly : 1 688 901 020

Opening
 pressure bar : 172...175

Perforated-plate
 diameter mm : 0.6

Test inj. tubing : 1 680 750 017

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 840

Start of delivery
 Prestroke mm : 0.25
 (from BDC): $\pm 0.02(0.04)$

Start of delivery block
 Piston stroke mm: 1.0
 mm: ± 0.02

Outlet : A

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100

D07

Charge press. hPa: 1000
 Setting value mm: 1.3...1.7

Supply-pump pressure:

Speed 1/min: 1100
 Charge press. hPa: 1000
 Setting value bar: 6.5...7.1

Full-load del. with charge press.:

Speed 1/min: 700
 Charge press. hPa: 1000
 Del.quantity cm3/
 1000H.: 99.0...100.0
 Dispersion cm3/ : 5.0
 1000H : -

Full-load del. w/out charge press.:

Speed 1/min : 700
 Del.quantity cm3/
 1000H.: 87.0...88.0

Low-idle speed regulation:

Speed 1/min: 300
 Charge press. hPa: -
 Del.quantity cm3/
 1000H.: 16.5...20.5
 Dispersion cm3/ : 5.0
 1000H.: -

Full-load speed regulation:

Speed 1/min: 1450
 Charge press. hPa: 1000
 Del.quantity cm3/
 1000H: 47.0...53.0

Start:

Speed 1/min: 100
 Charge press. hPa: -
 Del.quantity : -
 mind cm3/1000H.: 120.0

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
 Charge press. hPa: 1000
 TD travel mm: 0.4...1.2
 mm: (0.1...1.5)

2nd speed 1/min: 1100
 Charge press. hPa: 1000

TD travel mm: 1.3...1.7
mm: (0.8...2.2)
3rd speed 1/min: 1300
Charge press. hPa: 1000
TD travel mm: 2.0...2.8
mm: (1.7...3.1)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 3.9...4.5
2nd speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 6.5...7.1
3rd speed 1/min: 1300
Charge press. hPa: 1000
Supply-pump pressure bar: 7.3...7.9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -
Overflow quantity cm³/10s: 41...83
(26...98)
2nd speed 1/min: 1300
Charge press. hPa: 1000
Overflow quantity cm³/10s: 55...138
(40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 450
LDA stroke mm: 6.3
Del.quantity cm³/: 95.0...96.0
1000H.: (92.5...98.5)
2nd speed 1/min: 1550
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...7.0
1000H.: -
3rd speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm³/: 13.5...21.5
1000H.: (10.5...24.5)
4th speed 1/min: 1450
Charge press. hPa: 1000
Del.quantity cm³/: 47.0...53.0
1000H.: (44.0...56.0)
5th speed 1/min: 1300
Charge press. hPa: 1000
Del.quantity cm³/: 95.0...98.0
1000H.: (93.5...99.5)
6th speed 1/min: 1000
Charge press. hPa: 1000

Del.quantity cm³/: 99.5...102.5
1000H.: (98.0...104.0)
7th speed 1/min: 700
Charge press. hPa: 1000
Del.quantity cm³/: 99.0...100.0
1000H.: (96.5...102.5)
8th speed 1/min: 700
Charge press. hPa: -
Del.quantity cm³/: 87.0...88.0
1000H.: (84.5...90.5)
9th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 80.0...83.0
1000H.: (78.5...84.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1300
Del.quantity cm³/: 0...3
1000H.: -

Idle delivery:

1st speed 1/min: 300
Del.quantity cm³/: 16.5...20.5
1000H.: (13.5...23.5)
2nd speed 1/min: 350
Del.quantity cm³/: 4.5...10.5
1000H.: (2.5...12.5)
3rd speed 1/min: 400
Del.quantity cm³/: 0.0...2.6
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 150
Charge press. hPa: -
Del.quantity cm³/: -
ind. 1000H: 95.0
2nd speed 1/min: 230
Charge press. hPa: -
Del.quantity cm³/: -
max. 1000H : 85.0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: K-OT
MS	mm	: 0.6...1.0
SVS max.	mm	: -
XK	mm	: 17.0...19.0
XL	mm	: 12.8...16.2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U14
Edition : 01.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1100 R232-2
Type number : 0 460 426 111

Customer-specific information
Customer : CUMMINS

Engine : 6 BT-5.9IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.06)$

Start of delivery block
Piston stroke mm: 1.6
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1000
Charge press. hPa: 1000

D09

Setting value mm: 1.8...2.2

Supply-pump pressure:

Speed 1/min: 1000
Charge press. hPa: 1000
Setting value bar: 7.4...8.0

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 67.5...68.5
Dispersion cm³ / : 4.0
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 600
Del.quantity cm³/
1000H.: 56.0...57.0
Dispersion cm³ / : 9.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 340
Charge press. hPa: -
Del.quantity cm³/
1000H.: 10.0...12.0
Dispersion cm³ / : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1170
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 44.5...50.5

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm³/1000H.: 65.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 0.7...1.5
mm: (0.4...1.8)
2nd speed 1/min: 1000
Charge press. hPa: 1000

TD travel mm: 1.8...2.2
mm: (1.3...2.7)
3rd speed 1/min: 1100
Charge press. hPa: 1000
TD travel mm: 2.4...3.2
mm: (2.1...3.5)

Supply-pump pressure characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
Supply-pump pressure bar: 5.7...6.3
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 7.1...7.7
3rd speed 1/min: 1000
Charge press. hPa: 1000
Supply-pump pressure bar: 7.4...8.0
4th speed 1/min: 1100
Charge press. hPa: 1000
Supply-pump pressure bar: 7.9...8.5

Overflow quantity at overflow valve:

1st speed 1/min: 600
Charge press. hPa: -
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1100
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 400
LDA stroke mm: 7.0
Del.quantity cm³/: 66.0...67.0
1000H.: (62.5...70.5)
2nd speed 1/min: 1280
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1230
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...15.0
1000H.: -
4th speed 1/min: 1200
Charge press. hPa: 1000
Del.quantity cm³/: 15.0...55.0
1000H.: -
5th speed 1/min: 1170
Charge press. hPa: 1000

Del.quantity cm³/: 44.5...50.5
1000H.: (41.5...53.5)
6th speed 1/min: 1100
Charge press. hPa: 1000
Del.quantity cm³/: 64.5...67.5
1000H.: (63.0...69.0)
7th speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/: 67.5...68.5
1000H.: (65.0...71.0)
8th speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/: 69.0...73.0
1000H.: (67.0...75.0)
9th speed 1/min: 600
Charge press. hPa: 1000
Del.quantity cm³/: 72.0...82.0
1000H.: -
10th speed 1/min: 600
Charge press. hPa: -
Del.quantity cm³/: 56.0...57.0
1000H.: (52.5...70.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1100
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 340
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 340
Del.quantity cm³/: 10.0...12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 350
Charge press. hPa: -
Del.quantity cm³/: -
ind. 1000H: 70.0
2nd speed 1/min: 480
Charge press. hPa: -
Del.quantity cm³/: -
max. 1000H : 70.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5.0...5.4
MS	mm	: 1.3...1.7
SVS max.	mm	: 1.0
XK	mm	: 21,8...23,8
XL	mm	: 11,7...15,1

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U15
Edition : 31.01.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1250 R320
Type number : 0 460 426 114

Customer-specific information
Customer : CDC

Engine : 6 BT-590A

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Start of delivery block
Piston stroke mm : 1.4
mm : $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1100
Charge press. hPa: 1200

Setting value mm: 1.3...1.7
KSB solenoid-operated
valve volt: 12.0

Supply-pump pressure:

Speed 1/min: 1100
Charge press. hPa: 1200
Setting value bar: 6.8...7.4
KSB solenoid-operated
valve volt: 12.0

Full-load del. with charge press.:

Speed 1/min: 1100
Charge press. hPa: 1200
Del.quantity cm3/
1000H.: 75.5...76.5
KSB solenoid-operated
valve volt : 12.0
Dispersion cm3/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 51.0...52.0
KSB solenoid-operated
valve volt: 12.0
Dispersion cm3/ : 9.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 350
Charge press. hPa: -
Del.quantity cm3/
1000H.: 5.5...9.5
KSB solenoid-operated
valve volt: 12.0
Dispersion cm3/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1340
Charge press. hPa: 1200
Del.quantity cm3/
1000H: 52.5...58.5
KSB solenoid-operated
valve volt: 12.0

Start:

Speed 1/min: 100
Charge press. hPa: -
Del.quantity : -
mind cm3/1000H.: 60.0

KSB solenoid-operated
valve volt: 12.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 450
Charge press. hPa: -
TD travel mm: 3.0...4.0
mm: -

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1200
TD travel mm: 0.5...1.3
mm: (0.2...1.6)

KSB solenoid-operated
valve volt: 12.0
3rd speed 1/min: 1100
Charge press. hPa: 1200
TD travel mm: 1.3...1.7
mm: (0.8...2.2)

KSB solenoid-operated
valve volt: 12.0
4th speed 1/min: 1250
Charge press. hPa: 1200
TD travel mm: 2.2...3.0
mm: (1.9...3.3)

KSB solenoid-operated
valve volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1200
Supply-pump
pressure bar: 4.1...4.7

KSB solenoid-operated
valve volt: 12.0
2nd speed 1/min: 1100
Charge press. hPa: 1200
Supply-pump
pressure bar: 6.8...7.4

KSB solenoid-operated
valve volt: 12.0
3rd speed 1/min: 1250
Charge press. hPa: 1200
Supply-pump
pressure bar: 7.5...8.1

KSB solenoid-operated
valve volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: -

KSB solenoid-operated
valve volt: 12.0
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting
point hPa: 700
LDA stroke mm: -
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 68.0...69.0
1000H.: (64.5...72.5)

2nd speed 1/min: 1550
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 0.0...3.0
1000H.: -

3rd speed 1/min: 1450
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12
Del.quantity cm³/: 0.0...15.0
1000H.: -

4th speed 1/min: 1410
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 15.0...55.0
1000H.: -

5th speed 1/min: 1340
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 52.5...58.5
1000H.: (49.5...61.5)

6th speed 1/min: 1250
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 71.5...74.5
1000H.: (70.0...76.0)

7th speed 1/min: 1100
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 75.5...76.5
1000H.: (73.0...79.0)

8th speed 1/min: 750
Charge press. hPa: 1200

KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 75.0...80.0
1000H: (73.0...82.0)
9th speed 1/min: 500
Charge press. hPa: 1200
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 82.0...94.0
1000H: -
10th speed 1/min: 500
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 51.5...52.5
1000H: (48.0...56.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1250
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 350
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 300
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 8.5...16.5
1000H.: -
2nd speed 1/min: 350
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 5.5...9.5
1000H.: (2.5...12.5)
3rd speed 1/min: 450
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Charge press. hPa: -
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: -
ind. 1000H: 60.0

2nd speed 1/min: 250

Charge press. hPa: -
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: -
max. 1000H: 50.0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation
K mm : 3.6...3.8
KF mm : K-OT
MS mm : 1.0...1.4
SVS max. mm : 1,4
FH mm : -
XK mm : -
XL mm : -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : HEP 5,6 A
Edition : 01.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1400 R332
Type number : 0 460 426 121

Customer-specific information
Customer : HERCULES

Engine : DT 5.6 L

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0,04)$

Start of delivery block
Piston stroke mm: 1.1
mm: ± 0.02

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 900
Charge press. hPa: 1000

Setting value mm: 5.0...5.4

Supply-pump pressure:

Speed 1/min: 900
Charge press. hPa: 1000
Setting value bar: 3.9...4.5

Full-load del. with charge press.:

Speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 64.5...65.5
Dispersion cm3/ : 4.0
1000H : (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm3/
1000H.: 19.0...20.0
Dispersion cm3/ : 9.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 6.0...8.0
Dispersion cm3/ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm3/
1000H: 45.0...51.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 30.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 700
Charge press. hPa: 1000
TD travel mm: 2.9...3.7
mm: (2.6...4.0)
2nd speed 1/min: 900
Charge press. hPa: 1000
TD travel mm: 5.0...5.4
mm: (4.5...5.9)

3rd speed 1/min: 1400
Charge press. hPa: 1000
TD travel mm: 6.2...7.0
mm: (5.7...6.7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 2.1...2.7
2nd speed 1/min: 900
Charge press. hPa: 1000
Supply-pump pressure bar: 3.9...4.5
3rd speed 1/min: 1400
Charge press. hPa: 1000
Supply-pump pressure bar: 5.9...6.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Charge press. hPa: 1000
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1400
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 550
LDA stroke mm: -
Del.quantity cm³/: 52.5...53.5
1000H.: (49.0...57.0)
2nd speed 1/min: 1680
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1630
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...15.0
1000H.: -
4th speed 1/min: 1590
Charge press. hPa: 1000
Del.quantity cm³/: 15.0...55.0
1000H.: -
5th speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm³/: 45.0...51.0
1000H.: (42.0...54.0)
6th speed 1/min: 1400
Charge press. hPa: 1000
Del.quantity cm³/: 60.5...63.5
1000H.: (59.0...65.0)
7th speed 1/min: 1100

Charge press. hPa: 1100
Del.quantity cm³/: 64.0...67.0
1000H.: (62.0...69.0)
8th speed 1/min: 900
Charge press. hPa: 1000
Del.quantity cm³/: 64.5...65.5
1000H.: (62.0...68.0)
9th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 67.0...77.0
1000H.: -
10th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 19.0...20.0
1000H.: (15.5...23.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1400
Del.quantity cm³/: 0...3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 6.0...7.0
1000H.: (2.0...12.0)
2nd speed 1/min: 450
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 270
Del.quantity cm³/: -
ind. 1000H.: 45.0
2nd speed 1/min: 400
Del.quantity cm³/: -
max. 1000H.: 45.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : -

KF	mm	: 5.0...5.4
MS	mm	: 1.1...1.5
SVS max.	mm	: -
XK	mm	: -
XL	mm	: -

Remarks:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U16
Edition : 02.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R173-11
Type number : 0 460 426 125

Customer-specific information
Customer : CDC

Engine : 6BTA- 5.9 I

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0.04)$

Start of delivery block
Piston stroke mm: 1.85
mm: $\pm 0.02(0.06)$

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Charge press. hPa: 1000

Setting value mm: 1.5...1.9

Supply-pump pressure:

Speed 1/min: 750
Charge press. hPa: 1000
Setting value bar: 2.9...3.5

Full-load del. with charge press.:

Speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 94.5...95.5
Dispersion cm³ : 4.0
1000H.: (4.5)

Full-load del. w/out charge press.:

Speed 1/min : 500
Del.quantity cm³/
1000H.: 50.5...51.5
Dispersion cm³ : 9.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 8.0...12.0
Dispersion cm³ : 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
Charge press. hPa: 1000
Del.quantity cm³/
1000H.: 73.0...79.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 60.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 600
Charge press. hPa: 1000
TD travel mm: 0.5...1.3
mm: (0.2...1.6)
2nd speed 1/min: 750
Charge press. hPa: 1000
TD travel mm: 1.5...1.9
mm: (1.0...2.4)

3rd speed 1/min: 1050
Charge press. hPa: 1000
TD travel mm: 2.5...3.3
mm: (2.2...3.6)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
Supply-pump pressure bar: 1.8...2.4
2nd speed 1/min: 750
Charge press. hPa: 1000
Supply-pump pressure bar: 2.9...3.5
3rd speed 1/min: 1050
Charge press. hPa: 1000
Supply-pump pressure bar: 4.3...4.9

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Charge press. hPa: 1000
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 700
Charge-air pressure-setting point hPa: 300
LDA stroke mm: -
Del.quantity cm³/: 79.5...80.5
1000H.: (76.5...84.5)
2nd speed 1/min: 1200
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...3.0
1000H.: -
3rd speed 1/min: 1170
Charge press. hPa: 1000
Del.quantity cm³/: 0.0...15.0
1000H.: -
4th speed 1/min: 1140
Charge press. hPa: 1000
Del.quantity cm³/: 15.0...55.0
1000H.: -
5th speed 1/min: 1100
Charge press. hPa: 1000
Del.quantity cm³/: 73.0...79.0
1000H.: (70.0...82.0)
6th speed 1/min: 1050
Charge press. hPa: 1000
Del.quantity cm³/: 83.5...86.5
1000H.: (82.0...88.0)
7th speed 1/min: 900
Charge press. hPa: 1000

Del.quantity cm³/: 87.5...90.5
1000H.: (86.0...92.0)
8th speed 1/min: 750
Charge press. hPa: 1000
Del.quantity cm³/: 94.5...95.5
1000H.: (92.0...98.0)
9th speed 1/min: 500
Charge press. hPa: 1000
Del.quantity cm³/: 98.0...106.0
1000H.: -
10th speed 1/min: 500
Charge press. hPa: -
Del.quantity cm³/: 50.5...51.5
1000H.: (46.5...55.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³/: 0.3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...12.0
1000H.: (5.0...15.0)
2nd speed 1/min: 500
Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 250
Del.quantity cm³/: -
ind. 1000H: 45.0

2nd speed 1/min: 450
Del.quantity cm³/: -
max. 1000H : 55.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation

K mm : -
KF mm : 5.0...5.4

MS	mm	: 1.2...1.6
SVS max.	mm	: 1.2
XK	mm	: 21,8...23,8
XL	mm	: 14,1...17,5

Remarks:



BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U18
Edition : 02.02.89
replaces : -
Calibrating oil : ISO 4113
Injection pump : VE 6/12F1050 R225-19
Type number : 0 460 426 127

Customer-specific information
Customer : CUMMINS/GB

Engine : 6BT-5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 0207

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0,04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : 0

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3.4...3.8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3.7...4.3

Full-load del. w/out charge press.:

Speed 1/min : 750
Del.quantity cm3/
1000H.: 73.0...74.0
Dispersion cm3/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 8.0...14.0
Dispersion cm3/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
Del.quantity cm3/
1000H: 52.0...58.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.2...2.0
mm: (0.9...2.3)
2nd speed 1/min: 750
TD travel mm: 3.4...3.8
mm: (2.9...4.3)
3rd speed 1/min: 1050
TD travel mm: 4.9...5.7
mm: (4.6...6.0)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.6...3.2
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.7...4.3
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.9...5.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1170
Del.quantity cm³/: 0.0...15.0
1000H.: -
3rd speed 1/min: 1130
Del.quantity cm³/: 15.0...55.0
1000H.: -
4th speed 1/min: 1100
Del.quantity cm³/: 52.0...58.0
1000H.: (49.0...61.0)
5th speed 1/min: 1050
Del.quantity cm³/: 68.5...71.5
1000H.: (67.0...73.0)
6th speed 1/min: 900
Del.quantity cm³/: 71.0...74.0
1000H.: (69.0...76.0)
7th speed 1/min: 750
Del.quantity cm³/: 73.0...74.0
1000H.: (70.5...76.5)
8th speed 1/min: 500
Del.quantity cm³/: 59.0...67.0
1000H.: (57.0...69.0)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 8.0...14.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450

Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del.quantity cm³/: -
ind. 1000H: 60.0

2nd speed 1/min: 240
Del.quantity cm³/: -
max. 1000H : 60.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5.0...5.4
MS mm : 0.8...1.2
SVS max. mm : 2.2

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U19
Edition : 02.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R225-20
Type number : 0 460 426 128

Customer-specific information
Customer : CDC

Engine : 6BT- 5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 035

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): $\pm 0.02(0,04)$

Start of delivery block
Piston stroke mm: 1.5
mm: $\pm 0.02(0.06)$

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3.4...3.8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3.5...4.1

Full-load del. w/out charge press.:

Speed 1/min : 750
Del.quantity cm³/
1000H.: 64.5...65.5
Dispersion cm³/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm³/
1000H.: 10.0...12.0
Dispersion cm³/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
Del.quantity cm³/
1000H: 46.0...52.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm³/1000H.: 70.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.5...2.4
mm: (1.2...2.6)
2nd speed 1/min: 750
TD travel mm: 3.4...3.8
mm: (2.9...4.3)
3rd speed 1/min: 1050
TD travel mm: 5.0...5.8
mm: (4.7...6.1)

Supply-pump pressure characteristic:

Mfg. date: until : 500
Supply-pump
pressure bar: 2.4...3.0
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.5...4.1
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.6...5.2

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1250
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1160
Del.quantity cm³/: 0.0...15.0
1000H.: -
3rd speed 1/min: 1130
Del.quantity cm³/: 15.0...55.0
1000H.: -
4th speed 1/min: 1100
Del.quantity cm³/: 46.0...52.0
1000H.: (43.0...55.0)
5th speed 1/min: 1050
Del.quantity cm³/: 60.5...63.5
1000H.: (59.0...65.0)
6th speed 1/min: 900
Del.quantity cm³/: 62.0...65.0
1000H.: (60.0...67.0)
7th speed 1/min: 750
Del.quantity cm³/: 64.5...65.5
1000H.: (62.0...68.0)
8th speed 1/min: 500
Del.quantity cm³/: 64.0...72.0
1000H.: -

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 10.0...12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 500

Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del.quantity cm³/: -
ind. 1000H: 70.0

2nd speed 1/min: 350
Del.quantity cm³/: -
max. 1000H : 70.0

Shutoff electromagnet:

Cut-in
min. voltage : 20.0
Rated voltage : 24.0

Mounting and assembly dimensions:

Designation
K mm : -
KF mm : 5.0...5.4
MS mm : 1.2...1.6
SVS max. mm : -
XK mm : -
XL mm : -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : CUM 5,9 U20
Edition : 0.2.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 6/12F1050 R225-18
Type number : 0 460 426 129

Customer-specific information
Customer : CDC

Engine : 6BT-5.9 IND

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 027

Opening
pressure bar : 250...253

Perforated-plate
diameter mm : 0.5

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : 0.3
(from BDC): ± 0.02 (0,04)

Start of delivery block
Piston stroke mm: 1.5
mm: ± 0.02 (0.06)

Outlet : D

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 750
Setting value mm: 3.4...3.8

Supply-pump pressure:

Speed 1/min: 750
Setting value bar: 3.7...4.3

Full-load del. w/out charge press.:

Speed 1/min : 750
Del.quantity cm3/
1000H.: 75.0...76.0
Dispersion cm3/: 4.0
1000H.: (4.5)

Low-idle speed regulation:

Speed 1/min: 375
Del.quantity cm3/
1000H.: 10.0...12.0
Dispersion cm3/: 5.5
1000H.: (7.0)

Full-load speed regulation:

Speed 1/min: 1100
Del.quantity cm3/
1000H: 52.0...58.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 60.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 1.4...2.2
mm: (1.1...2.5)
2nd speed 1/min: 750
TD travel mm: 3.4...3.8
mm: (2.9...4.3)
3rd speed 1/min: 1050
TD travel mm: 4.6...5.4
mm: (4.3...5.7)

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 2.6...3.2
2nd speed 1/min: 750
Supply-pump
pressure bar: 3.7...4.3
3rd speed 1/min: 1050

Supply-pump
pressure bar: 4.9...5.5

Overflow quantity at overflow valve:

1st speed 1/min: 500
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 1050
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 1200
Del.quantity cm³/: 0.0...3.0
1000H.: -
2nd speed 1/min: 1170
Del.quantity cm³/: 0.0...15.0
1000H.: -
3rd speed 1/min: 1130
Del.quantity cm³/: 15.0...55.0
1000H.: -
4th speed 1/min: 1100
Del.quantity cm³/: 52.0...58.0
1000H.: (49.0...61.0)
5th speed 1/min: 1050
Del.quantity cm³/: 68.5...71.5
1000H.: (67.0...73.0)
6th speed 1/min: 900
Del.quantity cm³/: 71.5...74.5
1000H.: (69.5...74.5)
7th speed 1/min: 750
Del.quantity cm³/: 75.0...76.0
1000H.: (72.5...78.5)
8th speed 1/min: 500
Del.quantity cm³/: 59.5...67.5
1000H.: (57.5...69.5)

Zero delivery (stop):

Mech. shutoff:

Speed 1/min: 1050
Del.quantity cm³/: 0..3
1000H.: -

Electr. shutoff:

Speed 1/min: 375
ELAB volt: 12.0
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 375
Del.quantity cm³/: 10.0...12.0
1000H.: (6.0...16.0)
2nd speed 1/min: 450

Del.quantity cm³/: 0.0...4.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 130
Del.quantity cm³/: -
ind. 1000H: 60.0

2nd speed 1/min: 240
Del.quantity cm³/: -
max. 1000H : 60.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: -
KF	mm	: 5.0...5.4
MS	mm	: 0.8...1.2
SVS max.	mm	: -
XK	mm	: -
XL	mm	: -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 P
Edition : 10.03.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2300 R317
Type number : 0 460 484 020

Customer-specific information
Customer : RNUR

Engine : F8Q-A06

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Indicator setting:
Piston stroke mm : 1,0
Outlet : A

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 3,8...4,2
KSB solenoid-operated
valve volt: -

Supply-pump pressure:

D27

Speed 1/min: 1250
Setting value bar: 4,5...5,1
KSB solenoid-operated
valve volt: -

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 31,5...32,5
KSB solenoid-operated
valve volt: -
Dispersion cm3/: 2,5
1000H.: (3,0)

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 4,0...8,0
KSB solenoid-operated
valve volt: -
Dispersion cm3/: 2,5
1000H.: (3,0)

Residual-Delivery Setting
Speed 1/min: 500
Del.quantity cm3/
1000H.: 1,0...5,0
KSB-Solenoid-Operated
valve Volt : -

Full-load speed regulation:

Speed 1/min: 2450
Del.quantity cm3/
1000H.: 24,0...30,0
KSB solenoid-operated
valve volt: -

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 40,0
KSB solenoid-operated
valve volt: -

Load-dependent start of delivery:

Speed 1/min: 1250
KSB solenoid-operated
valve volt: -

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 310
 TD travel mm: 0,3...2,7
 mm: -
 KSB solenoid-operated
 valve volt: 12,0
 2nd speed 1/min: 500
 TD travel mm: 1,6...4,0
 mm: -
 KSB solenoid-operated
 valve volt: 12,0
 3rd speed 1/min: 750
 TD travel mm: 1,6...2,4
 mm: (1,3...2,7)
 KSB solenoid-operated
 valve volt: -
 4th speed 1/min: 1250
 TD travel mm: 3,8...4,2
 mm: (3,3...4,7)
 KSB solenoid-operated
 valve volt: -
 5th speed 1/min: 2000
 TD travel mm: 6,6...7,4
 mm: (6,3...7,7)
 KSB solenoid-operated
 valve volt: -
 6th speed 1/min: 2250
 TD travel mm: 7,6...8,4
 mm: (7,3...8,7)
 KSB solenoid-operated
 valve volt: -

Supply-pump pressure characteristic:

1st speed 1/min: 750
 Supply-pump
 pressure bar: 3,1...3,7
 KSB solenoid-operated
 valve volt: -
 2nd speed 1/min: 1250
 Supply-pump
 pressure bar: 4,5...5,1
 KSB solenoid-operated
 valve volt: -
 3rd speed 1/min: 2250
 Supply-pump
 pressure bar: 7,0...7,6
 KSB solenoid-operated
 valve volt: -

Overflow quantity at overflow valve:

1st speed 1/min: 750
 KSB solenoid-operated
 valve volt: -
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 2250
 KSB solenoid-operated
 valve volt: -

Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2950
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 0,0...5,0
 1000H.: (0,0...5,0)
 2nd speed 1/min: 2650
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 8,0...16,0
 1000H.: (7,0...17,0)
 3rd speed 1/min: 2450
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 24,0...30,0
 1000H.: (23,0...31,0)
 4th speed 1/min: 2250
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 31,1...33,1
 1000H.: (29,8...34,4)
 5th speed 1/min: 2000
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 30,5...32,5
 1000H.: (29,2...33,8)
 6th speed 1/min: 1625
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 29,9...32,9
 1000H.: (29,1...33,7)
 7th speed 1/min: 1250
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 31,5...32,5
 1000H.: (29,7...34,3)
 8th speed 1/min: 750
 KSB solenoid-operated
 valve volt: -
 Del.quantity cm³/: 30,2...33,2
 1000H.: (29,4...34,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
 ELAB volt: -
 Del.quantity cm³/: 0,0...3,0
 max. 1000H.: -

Idle delivery:

1st speed 1/min: 400

KSB solenoid-operated
valve volt: -
Del.quantity cm3/: 4,0...8,0
1000H.: (2,0...10,0)

High Idle:

Speed 1/min: 500
Del.quantity cm3/: 7,7...11,7
1000H.: (5,7...13,7)

KSB-Solenoid-operated
valve Volt: -

Automatic starting fuel delivery:

1st speed 1/min: 210
KSB solenoid-operated
valve volt: -
Del.quantity cm3/: -
ind. 1000H: 45,0

2nd speed 1/min: 310
KSB solenoid-operated
valve volt: -
Del.quantity cm3/: -
max. 1000H: 45,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K	mm	: 3,2...3,4
KF	mm	: 5,3...5,7
MS	mm	: 1,1...1,5
SVS max.	mm	: 1,4

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 1,3 B
Edition : 01.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 8F2450 L331
Type number : 0 460 484 021

Customer-specific information
Customer : VOLKSWAGEN

Engine : 1.31 SAUGD., POLO

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Setting value mm: 3.9...4.3

Supply-pump pressure:

Speed 1/min: 1500
Setting value bar: 5.4...6.0

Full-load del. w/out charge press.:

Speed 1/min: 1500
Del.quantity cm3/
1000H.: 22.5...23.5
Dispersion cm3/
1000H.: (3.0)

Low-idle speed regulation:

Speed 1/min: 425
Del.quantity cm3/
1000H.: 9.5...11.5
Residual-Delivery Setting
Speed 1/min: 575
Del.quantity cm3/
1000H.: 2.5...3.5

Full-load speed regulation:

Speed 1/min: 2600
Del.quantity cm3/
1000H.: 9.0...13.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 32.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 1000
TD travel mm: 1.6...2.4
mm: (1.3...2.7)
2nd speed 1/min: 1500
TD travel mm: 3.9...4.3
mm: (3.4...4.8)
3rd speed 1/min: 2200
TD travel mm: 6.9...7.7
mm: (6.6...8.0)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.7...4.3
2nd speed 1/min: 1500
Supply-pump
pressure bar: 5.4...6.0
3rd speed 1/min: 2450
Supply-pump
pressure bar: 7.7...8.3

Overflow quantity at overflow valve:

1st speed 1/min: 800

Overflow : 41...83
quantity cm3/10s: (26...98)
2nd speed 1/min: 2450
Overflow : 55...138
quantity cm3/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2800
Del.quantity cm3/: 0.0...6.0
1000H.: -
2nd speed 1/min: 2600
Del.quantity cm3/: 9.0...13.0
1000H.: (7.0...15.0)
3rd speed 1/min: 2550
Del.quantity cm3/: 10.5...20.5
1000H.: (9.5...21.5)
4th speed 1/min: 2450
Del.quantity cm3/: 21.0...23.0
1000H.: (19.8...24.2)
5th speed 1/min: 1500
Del.quantity cm3/: 22.5...23.5
1000H.: (20.8...25.2)
6th speed 1/min: 800
Del.quantity cm3/: 18.5...21.5
1000H.: (17.0...23.0)
7th speed 1/min: 600
Del.quantity cm3/: 15.0...20.0
1000H.: (12.5...22.5)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 450
ELAB volt: -
Del.quantity cm3/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 425
Del.quantity cm3/: 9.5...11.5
1000H.: (6.5...14.5)
2nd speed 1/min: 450
Del.quantity cm3/: 5.5...8.5
1000H.: (3.0...11.0)

Residual:

Speed 1/min: 525
Del.quantity : 3.0...5.0
1000H.: (1.5...5.5)

Automatic starting fuel delivery:

1st speed 1/min: 200
Del.quantity cm3/: -
ind. 1000H: 30.0

2nd speed 1/min: 400
Del.quantity cm3/: -
max. 1000H : 30.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: 3.2...3.4
KF	mm	: -
MS	mm	: 1.2...1.6

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VWV 2,4 S6
Edition : 03.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 5/ 8F2200 L336
Type number : 0 460 485 001

Customer-specific information
Customer : AUDI

Engine : 153-2.4L

Power k: 60.0
Speed 1/mi: 4400

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1250
Setting value mm: 2.7...3.1
KSB solenoid-operated
valve volt: 12.0

Supply-pump pressure:

Speed 1/min: 1250
Setting value bar: 5.7...6.3
KSB solenoid-operated
valve volt: 12.0

Full-load del. w/out charge press.:

Speed 1/min : 1250
Del.quantity cm3/
1000H.: 35.0...36.0
KSB solenoid-operated
valve volt: 12.0
Dispersion cm3/: 2.0
1000H.: -

Low-idle speed regulation:

Speed 1/min: 415
Del.quantity cm3/
1000H.: 7.0...9.0
KSB solenoid-operated
valve volt: 12.0
Dispersion cm3/: 2.0
1000H.: (3.0)
Residual-Delivery Setting
Speed 1/min: 540
Del.quantity cm3/
1000H.: 2.0...3.0
KSB-Solenoid-Operated
valve Volt : 12.0

Full-load speed regulation:

Speed 1/min: 2525
Del.quantity cm3/
1000H.: 10.0...14.0
KSB solenoid-operated
valve volt: 12.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 35.0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
TD travel mm: 2.3...2.7
mm: (1.5...3.5)
KSB solenoid-operated
valve volt: -
2nd speed 1/min: 750
TD travel mm: 0.6...1.4
mm: (0.3...1.7)

KSB solenoid-operated
valve volt: 12.0
3rd speed 1/min: 1250
TD travel mm: 2.7...3.1
mm: (2.2...3.6)

KSB solenoid-operated
valve volt: 12.0
4th speed 1/min: 2000
TD travel mm: 5.9...6.7
mm: (5.6...7.0)

KSB solenoid-operated
valve volt: 12.0

Supply-pump pressure characteristic:

1st speed 1/min: 500
Supply-pump
pressure bar: 5.1...6.3

KSB solenoid-operated
valve volt: -

2nd speed 1/min: 750

Supply-pump
pressure bar: 4.6...5.2

KSB solenoid-operated
valve volt: 12.0

3rd speed 1/min: 1250

Supply-pump
pressure bar: 5.7...6.3

KSB solenoid-operated
valve volt: 12.0

4th speed 1/min: 2200

Supply-pump
pressure bar: 7.7...8.3
bar: (7.5...8.5)

KSB solenoid-operated
valve volt: 12.0

Overflow quantity at overflow valve:

1st speed 1/min: 750
KSB solenoid-operated
valve volt: 12.0
Overflow : 41...83
quantity cm³/10s: (26...98)

2nd speed 1/min: 2200
KSB solenoid-operated
valve volt: 12.0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 0.0...6.0
1000H.: -

2nd speed 1/min: 2525
KSB solenoid-operated
valve volt: 12.0

Del.quantity cm³/: 10.0...14.0
1000H.: (8.0...16.0)

3rd speed 1/min: 2425

KSB solenoid-operated
valve volt: 12.0

Del.quantity cm³/: 18.0...28.0
1000H.: (17.0...29.0)

4th speed 1/min: 2200

KSB solenoid-operated
valve volt: 12.0

Del.quantity cm³/: 29.2...31.2
1000H.: (28.0...32.4)

5th speed 1/min: 1250

KSB solenoid-operated
valve volt: 12.0

Del.quantity cm³/: 35.0...36.0
1000H.: (33.2...37.7)

6th speed 1/min: 750

KSB solenoid-operated
valve volt: 12.0

Del.quantity cm³/: 30.3...33.7
1000H.: (29.2...35.2)

7th speed 1/min: 500

KSB solenoid-operated
valve volt: 12.0

Del.quantity cm³/: 29.5...34.5
1000H.: (27.0...37.0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 365
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 14.5...17.5
1000H.: (12.0...20.0)

2nd speed 1/min: 415
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: 7.0...9.0
1000H.: (4.0...12.0)

Residual:

Speed 1/min: 490
Del.quantity : 2.5...4.5
1000H.: (1.0...6.0)
KSB-Solenoid-operated
valve Volt: 12.0

Automatic starting fuel delivery:

1st speed 1/min: 180
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: -
ind. 1000H: 35.0

2nd speed 1/min: 380
KSB solenoid-operated
valve volt: 12.0
Del.quantity cm³/: -
max. 1000H : 40.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: 3.1...3.5
KF	mm	: K-OT
MS	mm	: 1.2...1.6
SVS max.	mm	: -

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : FIA 1,7 P5
Edition : 16.01.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2100 R343
Type number : 0 460 494 246

Customer-specific information
Customer : FIAT-AUTO

Engine : M710 DT 19 D

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value mm: 5,5...5,9
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 1000
Setting value bar: 5,3...5,9
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1500
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 52,0...53,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 2,5
1000H.: (2,5)

Full-load del. w/out charge press.:

Speed 1/min: 600
Del.quantity cm3/
1000H.: 40,0...41,0
KSB solenoid-operated
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 11,0...15,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm3/ : 2,5
1000H.: (2,5)

Residual-Delivery Setting
Speed 1/min: 700
Del.quantity cm3/
1000H.: 4,0...6,0
KSB-Solenoid-Operated
valve Volt : 12,0

Full-load speed regulation:

Speed 1/min: 2300
Charge press. hPa: 1000
Del.quantity cm3/
1000H.: 30,0...36,0
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 55,0
KSB solenoid-operated
valve volt: 12,0

Load-dependent start of delivery:

Speed 1/min: 1500

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
Charge press. hPa: 1000
TD travel mm: 3,2...4,8
mm: (2,5...5,5)

KSB solenoid-operated
valve volt: -
2nd speed 1/min: 1000
Charge press. hPa: 1000
TD travel mm: 2,5...5,5
mm: (2,5...5,5)

KSB solenoid-operated
valve volt: -
3rd speed 1/min: 800
Charge press. hPa: 1000
TD travel mm: 1,8...2,6
mm: (1,5...2,9)

KSB solenoid-operated
valve volt: 12,0
4th speed 1/min: 1500
Charge press. hPa: 1000
TD travel mm: 5,5...5,9
mm: (5,2...6,2)

KSB solenoid-operated
valve volt: 12,0
5th speed 1/min: 2100
Charge press. hPa: 1000
TD travel mm: 8,2...9,0
mm: (7,9...9,3)

KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 800
Charge press. hPa: 1000
Supply-pump pressure bar: 3,2...3,8

KSB solenoid-operated
valve volt: 12,0
2nd speed 1/min: 1500
Charge press. hPa: 1000
Supply-pump pressure bar: 5,3...5,9

KSB solenoid-operated
valve volt: 12,0
3rd speed 1/min: 2100
Charge press. hPa: 1000
Supply-pump pressure bar: 7,0...7,6

KSB solenoid-operated
valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 800
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0

Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 800
Charge-air pressure-setting
point hPa: 400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)

2nd speed 1/min: 2650
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 0,0...7,0
1000H.: -

3rd speed 1/min: 2450
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 12,0...20,0
1000H.: (11,0...21,0)

4th speed 1/min: 2300
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 30,0...36,0
1000H.: (29,0...37,0)

5th speed 1/min: 2100
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 50,5...53,5
1000H.: (49,5...54,5)

6th speed 1/min: 1500
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 52,0...53,0
1000H.: (50,5...54,5)

7th speed 1/min: 800
Charge press. hPa: 1000
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 55,5...58,5
1000H.: -

8th speed 1/min: 800
Charge press. hPa: 400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 43,5...44,5
1000H.: (41,5...46,5)

9th speed 1/min: 800
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 37,0...39,0
1000H: (35,5...40,5)
10th speed 1/min: 600
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 40,0...41,0
1000H: (38,0...43,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 11,0...15,0
1000H.: (9,5...16,5)

Residual:

Speed 1/min: 500
Del.quantity : 4,8...7,8
1000H.: -
KSB-Solenoid-operated
valve Volt: 12,0

Automatic starting fuel delivery:

1st speed 1/min: 220
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: -
ind. 1000H: 57,0

2nd speed 1/min: 300
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: -
max. 1000H : 48,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

E09

K	mm	: 3,2...3,4
KF	mm	: 5,6...6,0
MS	mm	: 1,0...1,4

Remarks:

Correction at adjusting nut (46)

Unscrew KSB ball valve 2 mm

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 01
Edition : 01.02.89
replaces : -
Calibrating oil : ISO 4113

Injection pump : VE 4/ 9F2350 R309-1
Type number : 0 460 494 247

Customer-specific information
Customer : RNUR

Engine : J8S - 740

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0.35

Calibrating nozzle-holder
assembly : 1 688 901 022

Opening
pressure bar : 0.35

Test inj. tubing : 1 680 750 073

Outside diameter : 6
x Wall thickness : 2
x Length mm : 450

Start of delivery
Prestroke mm : -
(from BDC) : -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1125
Setting value mm: 2.6...3.0

Supply-pump pressure:

Speed 1/min: 1125
Setting value bar: 4.2...4.8

Full-load del. w/out charge press.:

Speed 1/min: 1125
Del.quantity cm3/
1000H.: 36.5...37.5
Dispersion cm3/: 2.5
1000H.: (3.0)

Low-idle speed regulation:

Speed 1/min: 400
Del.quantity cm3/
1000H.: 6.0...10.0
Dispersion cm3/: 2.5
1000H.: (3.0)
Residual-Delivery Setting
Speed 1/min: 500
Del.quantity cm3/
1000H.: 1.0...5.0

Full-load speed regulation:

Speed 1/min: 2500
Del.quantity cm3/
1000H.: 20.0...26.0

Start:

Speed 1/min: 100
Del.quantity : -
mind cm3/1000H.: 52.0

Load-dependent start of delivery:

Speed 1/min: 1125

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
TD travel mm: 0.7...1.5
mm: (0.4...1.8)
2nd speed 1/min: 1125
TD travel mm: 2.6...3.0
mm: (2.1...3.5)
3rd speed 1/min: 2000
TD travel mm: 6.9...7.7
mm: (6.6...8.0)

Supply-pump pressure characteristic:

1st speed 1/min: 800
Supply-pump
pressure bar: 3.1...3.7
2nd speed 1/min: 1125
Supply-pump
pressure bar: 4.2...4.8
3rd speed 1/min: 2000

Supply pump
pressure

bar: 6.5...7.1

Overflow quantity at overflow valve:

1st speed 1/min: 800
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery quant. and breakaway char.:

1st speed 1/min: 2750
Del. quantity cm³/: 0.0...5.0
1000H.: -
2nd speed 1/min: 2650
Del. quantity cm³/: 2.0...10.0
1000H.: (1.0...11.0)
3rd speed 1/min: 2250
Del. quantity cm³/: 34.3...36.3
1000H.: (33.0...37.6)
4th speed 1/min: 1750
Del. quantity cm³/: 34.0...36.0
1000H.: (32.7...37.3)
5th speed 1/min: 1125
Del. quantity cm³/: 36.5...37.5
1000H.: (34.7...39.3)
6th speed 1/min: 800
Del. quantity cm³/: 33.5...36.5
1000H.: (32.7...37.3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del. quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del. quantity cm³/: 6,0...10,0
1000H.: (4,0...12,0)

High Idle:

Speed 1/min: 500
Del. quantity cm³/: 7,7...11,7
1000H.: (5,7...13,7)

Residual:

Speed 1/min: 500
Del. quantity : 1,0...5,0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 210
Del. quantity cm³/: -
ind. 1000H: 45.0

2nd speed 1/min: 310
Del. quantity cm³/: -
max. 1000H : 45.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation

K	mm	: 3.2...3.4
KF	mm	: 5.3...5.7
MS	mm	: 1.3...1.7
SVS max.	mm	: 2.3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : REN 2,0 02
 Edition : 01.02.89
 replaces : -
 Calibrating oil : ISO 4113
 Injection pump : VE 4/ 9F2350 R309-2
 Type number : 0 460 494 251
 Customer-specific information
 Customer : RNUR
 Engine : J8S-736 , 740

TEST BENCH REQUIREMENTS

Calibrating-oil
 return temp. °C
 with thermometer : 40...48
 electronically : 42...50
 Inlet press., bar : 0.35
 Calibrating nozzle-holder
 assembly : 1 688 901 022

Opening
 pressure bar : 130...133

Test inj. tubing : 1 680 750 073

Outside diameter : 6
 x Wall thickness : 2
 x Length mm : 450

Start of delivery
 Prestroke mm : -
 (from BDC): -

Injection-pump setting values
 Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1125
 Setting value mm: 2.6...3.0

Supply-pump pressure:

Speed 1/min: 1125
 Setting value bar: 4.2...4.8

Full-load del. w/out charge press.:

Speed 1/min : 1125
 Del.quantity cm3/
 1000H.: 36.5...37.5
 Dispersion cm3/: 2.5
 1000H.: (3.0)

Low-idle speed regulation:

Speed 1/min: 400
 Del.quantity cm3/
 1000H.: 6.0...10.0
 Dispersion cm3/: 2.5
 1000H.: (3.0)
 Residual-Delivery Setting
 Speed 1/min: 500
 Del.quantity cm3/
 1000H.: 1.0...5.0

Full-load speed regulation:

Speed 1/min: 2500
 Del.quantity cm3/
 1000H: 20.0...26.0

Start:

Speed 1/min: 100
 Del.quantity : -
 mind cm3/1000H.: 52.0

Load-dependent start of delivery:

Speed 1/min: 1125

Inspection-pump test specifications
 Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 800
 TD travel mm: 0.7...1.5
 mm: (0.4...1.8)
 2nd speed 1/min: 1125
 TD travel mm: 2.6...3.0
 mm: (2.1...3.5)
 3rd speed 1/min: 2000
 TD travel mm: 6.9...7.7
 mm: (6.6...8.0)

Supply-pump pressure characteristic:

1st speed 1/min: 800
 Supply-pump
 pressure bar: 3.1...3.7
 2nd speed 1/min: 1125
 Supply-pump
 pressure bar: 4.2...4.8
 3rd speed 1/min: 2000

Supply-pump
pressure bar: 6.5...7.1

Overflow quantity at overflow valve:

1st speed 1/min: 800
Overflow : 41...83
quantity cm³/10s: (26...98)
2nd speed 1/min: 2250
Overflow : 55...138
quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2750
Del.quantity cm³/: 0.0...5.0
1000H.: -
2nd speed 1/min: 2650
Del.quantity cm³/: 2.0...10.0
1000H.: (1.0...11.0)
3rd speed 1/min: 2250
Del.quantity cm³/: 34.3...36.3
1000H.: (33.0...37.6)
4th speed 1/min: 1750
Del.quantity cm³/: 34.0...36.0
1000H.: (32.7...37.3)
5th speed 1/min: 1125
Del.quantity cm³/: 36.5...37.5
1000H.: (34.7...39.3)
6th speed 1/min: 800
Del.quantity cm³/: 33.5...36.5
1000H.: (32.7...37.3)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 400
ELAB volt: -
Del.quantity cm³/: 0.0...3.0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 400
Del.quantity cm³/: 6.0...10.0
1000H.: (4.0...12.0)

High Idle:

Speed 1/min: 500
Del.quantity cm³/: 7.7...11.7
1000H.: (5.7...13.7)

Residual:

Speed 1/min: 500
Del.quantity : 1.0...5.0
1000H.: -

Automatic starting fuel delivery:

1st speed 1/min: 210
Del.quantity cm³/: -
ind. 1000H: 45.0

2nd speed 1/min: 310
Del.quantity cm³/: -
max. 1000H : 45.0

Shutoff electromagnet:

Cut-in
min. voltage : 10.0
Rated voltage : 12.0

Mounting and assembly dimensions:

Designation
K mm : 3.2...3.4
KF mm : 5.3...5.7
MS mm : 1.3...1.7
SVS max. mm : 2.3

Remarks:

BOSCH-INJ.-PUMP TEST SPECIFICATIONS

Note inst. in remarks column

Test sheet : VW 2,0 K1
Edition : 3.3.89
replaces : 16.1.89
Calibrating oil : ISO 4113

Injection pump : VE 5/ 9F2250 L245
Type number : 0 460 495 001
Customer Part-No. :

Customer-specific information
Customer : VW

Engine : 153T-LLK

TEST BENCH REQUIREMENTS

Calibrating-oil
return temp. °C
with thermometer : 40...48
electronically : 42...50

Inlet press., bar : 0,35

Calibrating nozzle-holder
assembly : 1 688 901 000

Opening
pressure bar : 147...150

Test inj. tubing : 1 680 750 017

Outside diameter : 6
x Wall thickness : 2
x Length mm : 840

Start of delivery
Prestroke mm : -
(from BDC): -

Injection-pump setting values
Test specifications in parentheses

Timing-device travel:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value mm: 3,0...3,4
KSB solenoid-operated
valve volt: 12,0

Supply-pump pressure:

Speed 1/min: 1500
Charge press. hPa: 750
Setting value bar: 6,0...6,6
KSB solenoid-operated
valve volt: 12,0

Full-load del. with charge press.:

Speed 1/min: 1500
Del.quantity cm³/
1000H.: 42,7...43,7
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 2,5
1000H : (3,0)

Full-load del. w/out charge press.:

Speed 1/min : 700
Del.quantity cm³/
1000H.: 27,0...28,0
KSB solenoid-operated
valve volt: 12,0

Low-idle speed regulation:

Speed 1/min: 390
Del.quantity cm³/
1000H.: 10,0...12,0
KSB solenoid-operated
valve volt: 12,0
Dispersion cm³ : 2,5
1000H.: (3,0)

Residual-Delivery Setting

Speed 1/min: 540
Del.quantity cm³/
1000H.: 2,5...3,5
KSB-Solenoid-Operated
valve Volt : 12,0

Full-load speed regulation:

Speed 1/min: 2525
Del.quantity cm³/
1000H: 16,0...20,0
KSB solenoid-operated
valve volt: 12,0

Start:

Speed 1/min: 100
Del.quantity : 37,0...48,0
mind cm³/1000H.: -
KSB solenoid-operated
valve volt: 12,0

Inspection-pump test specifications
Test specifications in parentheses

Timing-device characteristic:

1st speed 1/min: 500
 Charge press. hPa: 750
 TD travel mm: 2,3...2,7
 mm: 1,5...3,5
 2nd speed 1/min: 1000
 Charge press. hPa: 750
 TD travel mm: 0,8...1,6
 mm: (0,5...1,9)
 KSB solenoid-operated
 valve volt: 12,0
 3rd speed 1/min: 1500
 Charge press. hPa: 750
 TD travel mm: 3,0...3,4
 mm: (1,5...3,9)
 KSB solenoid-operated
 valve volt: 12,0
 4th speed 1/min: 2250
 Charge press. hPa: 750
 TD travel mm: 6,1...6,9
 mm: (5,8...7,2)
 KSB solenoid-operated
 valve volt: 12,0

Supply-pump pressure characteristic:

1st speed 1/min: 500
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 5,2...6,4
 2nd speed 1/min: 700
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 4,1...4,7
 KSB solenoid-operated
 valve volt: 12,0
 3rd speed 1/min: 1500
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 6,0...6,6
 KSB solenoid-operated
 valve volt: 12,0
 4th speed 1/min: 2250
 Charge press. hPa: 750
 Supply-pump
 pressure bar: 7,7...8,3
 KSB solenoid-operated
 valve volt: 12,0

Overflow quantity at overflow valve:

1st speed 1/min: 700
 KSB solenoid-operated
 valve volt: 12,0
 Overflow : 41...83
 quantity cm³/10s: (26...98)
 2nd speed 1/min: 2250
 Charge press. hPa: 750

KSB solenoid-operated
 valve volt: 12,0
 Overflow : 55...138
 quantity cm³/10s: (40...153)

Delivery-quant. and breakaway char.:

1st speed 1/min: 2700
 Charge-air pressure-setting
 point hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 0,0...6,0
 1000H.: (0,0...6,0)
 2nd speed 1/min: 2525
 Charge press. hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 16,0...20,0
 1000H.: (14,0...22,0)
 3rd speed 1/min: 2425
 Charge press. hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 25,5...35,5
 1000H.: (24,5...36,5)
 4th speed 1/min: 2250
 Charge press. hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 36,5...38,5
 1000H.: (35,3...39,7)
 5th speed 1/min: 1500
 Charge press. hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 42,7...43,7
 1000H.: (41,0...45,4)
 6th speed 1/min: 850
 Charge press. hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 33,5...34,5
 1000H.: (31,0...37,0)
 7th speed 1/min: 700
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 27,0...28,0
 1000H.: (24,5...30,5)
 8th speed 1/min: 700
 Charge press. hPa: 750
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 37,0...40,0
 1000H.: (35,5...41,5)
 9th speed 1/min: 500
 KSB solenoid-operated
 valve volt: 12,0
 Del.quantity cm³/: 24,5...29,5
 1000H.: (22,0...32,0)

Zero delivery (stop):

Electr. shutoff:

Speed 1/min: 415
ELAB volt: -
Del.quantity cm³/: 0,0...3,0
max. 1000H.: -

Idle delivery:

1st speed 1/min: 390
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 10,0...12,0
1000H.: (5,5...16,5)
2nd speed 1/min: 415
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 6,0...10,0
1000H.: (2,5...13,5)

Residual:

Speed 1/min: 490
Del.quantity : 3,3...5,3
1000H.: (0,8...7,8)
KSB-Solenoid-operated
valve Volt: 12,0

Automatic starting fuel delivery:

1st speed 1/min: 190
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 35,0...85,0
ind. 1000H: 35,0

2nd speed 1/min: 390
KSB solenoid-operated
valve volt: 12,0
Del.quantity cm³/: 15,0...35,0
max. 1000H : 35,0

Shutoff electromagnet:

Cut-in
min. voltage : 10,0
Rated voltage : 12,0

Mounting and assembly dimensions:

Designation

K mm : K1
KF mm : -
MS mm : 1,6...2,0
SVS max. mm : 1,3

Remarks:

:
Operate control lever after each
manifold-pressure compensator pressure
change.

Correction at adjusting nut (46)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 n
 Edition : 07.04.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 406
 Injection pump
 Pump designation : PE6P100A320LS805
 EP type number : 0 411 806 148
 Governor
 Governor design. : RQ300/1150PA436R
 Governor no. : 0 421 801 089

Customer spec. information
 Customer : DAIMLER-BENZ

Engine : OM 401

1st version kW : 136.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.40...3.50
 : (3.35...3.55)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1130

Rack travel in mm : 10.50...10.60

Del.quantity cm3/ : 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 7.8...8.0

Del.quantity cm3/ : 2.5...3.0

100 s: (2.2...3.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1130

Del.quantity : 101.0...103.0

1000 : (99.0...105.0)

Spread cm3 : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.2

Testing:

1st rack travel in: 9.50

Speed rpm : 1180...1190

2nd rack travel in: 4.10
Speed rpm : 1250...1280
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.9

Testing:

Speed rpm : 100
Minimum rack trave: 9.40
Speed rpm : 300
Rack travel in mm : 7.80...8.00
Rack travel in mm : 2.00
Speed rpm : 360...400

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.50...10.60
2nd speed rpm : 650
Rack travel in m: 10.50...10.70

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1180...1190

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 110.0...130.0
1000 s: (106.0...134.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 k 1
Edition : 07.04.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 443
Injection pump
Pump designation : PE6P110A72ORS371-1
EP type number : 0 411 816 166
Governor
Governor design. : RQV300...1100PA551
Governor no. : 0 421 813 272

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM355A

1st version kW : 206.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 16.0...16.2

100 s: (15.7...16.4)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 6.1...6.3
Del.quantity cm3/ : 1.4...2.0
100 s: (1.1...2.2)
Spread cm3 : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.40
2nd speed rpm : 440
travel mm : 2.50...2.90
3rd speed rpm : 1150
travel mm : 8.40...8.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1100
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Aneroid pressure h: 700
Del.quantity : 160.0...162.0
1000 : (157.5...164.5)
Spread cm3 : 4.00
1000 : (8.00)

RATED SPEED

1st version

Control lever

position degrees: 64...68

Testing:

1st rack travel in: 10.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed rpm : 100

Minimum rack travel: 8.00

Speed rpm : 300

Rack travel in mm : 6.20...6.40

Rack travel in mm : 2.00

Speed rpm : 440...500

CONSTANT REGULATION

Speed rpm : 275...330

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 11.00...11.10

2nd pressure hPa : 390

Rack travel in m: 11.50...11.60

3rd pressure hPa : 350

Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600

E20

Del.quantity cm3/ : 156.0...160.0

1000 s: (153.0...163.0)

Spread cm3 : 6.00

1000 s: (9.00)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 135.0...137.0

1000 s: (132.0...140.0)

Spread cm3 : 6.00

1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 135.0...155.0

1000 s: (131.0...159.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,8 i 1
Edition : 07.04.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 846 450
Injection pump
Pump designation : PE6P110A720RS371-1
EP type number : 0 411 816 166
Governor
Governor design. : RQV300...1100PA568
Governor no. : 0 421 813 286

Customer spec. information
Customer : DAIMLER-BENZ

Engine : OM355A

1st version kW : 206.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.3

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.1)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...2.00

2nd speed rpm : 540

travel mm : 4.40...4.60

3rd speed rpm : 820

travel mm : 5.90...6.20

4th speed rpm : 1100

travel mm : 8.30...8.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm3 : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 64...68

Testing:

1st rack travel in: 10.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1215...1245
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 12...20

Testing:

Speed rpm : 100
Minimum rack travel: 8.00
Speed rpm : 300
Rack travel in mm : 6.20...6.40

CONSTANT REGULATION

Speed rpm : 275...330

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 11.00...11.10
2nd pressure hPa : 390
Rack travel in m: 11.50...11.60
3rd pressure hPa : 350
Rack travel in m: 11.20...11.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 600

Del.quantity cm3/ : 155.0...159.0
1000 s: (152.0...162.0)
Spread cm3 : 6.00
1000 s: (9.00)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (131.0...159.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 h
Edition : 29.03.89
Replaces : 2.12.88
Test oil : ISO-4113

Combination no. : 0 401 846 482

Injection pump
Pump designation : PE6P120A320RS257
EP type number : 0 411 826 075
Governor
Governor design. : RQV250...1100PA680
Governor no. : 0 421 813 374

Customer-spec. information
Customer : ENASA

Engine : 96 T1 AX,BX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 10.00...10.10

Del.quantity cm³/ : 18.8...19.0

100 s: (18.5...19.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.5...5.7
Del.quantity cm³/ : 1.7...2.3
100 s: (1.4...2.6)

Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 1.70...2.30

3rd speed rpm : 650
travel mm : 4.00...4.60

4th speed rpm : 1145
travel mm : 8.30...8.50

5th speed rpm : 1225
travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1080
Aneroid pressure h: 900
Del.quantity : 188.0...190.0
1000 : (185.0...193.0)

Spread cm³ : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:
1st rack travel in: 9.00
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1320
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 16...22

Testing:
Speed rpm : 100
Minimum rack travel: 7.10
Speed rpm : 250
Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 250...380

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1080
Rack travel in m: 10.00...10.10
2nd speed rpm : 650
Rack travel in m: 10.50...10.70
3rd speed rpm : 850
Rack travel in m: 10.20...10.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 10.20...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.70...9.10
2nd pressure hPa : 415
Rack travel in m: 10.00...10.10
3rd pressure hPa : 290
Rack travel in m: 9.20...9.40

START CUT-OUT

Speed 1/min : 170 (150)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 650
Del.quantity cm³/ : 173.0...179.0
 1000 s: (170.0...182.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 128.0...130.0
 1000 s: (125.0...133.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
 1000 s: (126.0...154.0)
Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 a
Edition : 07.04.89
Replaces : 8.6.88
Test oil : ISO-4113

Combination no. : 0 401 846 494

Injection pump
Pump designation : PE6P100A72ORS473
EP type number : 0 411 806 196
Governor
Governor design. : RQ300/1100PA269-1
Governor no. : 0 421 801 237

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 355

1st version kW : 177.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 12.0...12.2

100 s: (11.8...12.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.1...8.3

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 2.30...2.60

2nd speed rpm : 600
travel mm : 6.90...7.10

3rd speed rpm : 1150
travel mm : 7.30...7.70

4th speed rpm : 1200
travel mm : 10.00...10.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.40...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 120.0...122.0

1000 : (118.0...124.0)

Spread cm³ : 3.50
 1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 43...51

Testing:

1st rack travel in: 11.50
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Control lever
position degrees: 13...21

Testing:

Speed rpm : 200
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 6.00...6.30
Rack travel in mm : 2.00
Speed rpm : 350...390

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 110.0...114.0
 1000 s: (107.5...116.5)
Spread cm³ : 5.00
 1000 s: (7.)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
 1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,6 a 2
 Edition : 07.04.89
 Replaces : 11.85
 Test oil : ISO-4113
 Combination no. : 0 401 846 514
 Injection pump
 Pump designation : PE6P100A72ORS473
 EP type number : 0 411 806 196
 Governor
 Governor design. : RQ300/1100PA269-2
 Governor no. : 0 421 801 293

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 355

1st version kW : 155.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.4...8.6

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.40...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 104.0...106.0

1000 : (102.0...108.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.6

Testing:

1st rack travel in: 10.80

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1195...1215
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.5

Testing:

Speed rpm : 100
Minimum rack travel: 10.10
Speed rpm : 300
Rack travel in mm : 8.40...8.60
Rack travel in mm : 2.00
Speed rpm : 440...480

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 89.0...93.0
1000 s: (86.5...95.5)
Spread cm³ : 5.00
1000 s: (7.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 12,0 a
Edition : 29.03.89
Replaces : 22.1.88
Test oil : ISO-4113
Combination no. : 0 401 846 548
Injection pump
Pump designation : PE6P120A320RS257
EP type number : 0 411 826 075
Governor
Governor design. : RQ250/1100FA877
Governor no. : 0 421 501 409

Customer spec. information
Customer : ENASA

Engine : 9156.13V1

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

F01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 10.60...10.70

Del. quantity cm3/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.5...5.7

Del. quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.40...16.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Aneroid pressure h: 900

Del. quantity : 200.0...202.0

1000 : (197.0...205.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 9.60

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.6

Testing:

Speed rpm : 100

Minimum rack trave: 7.10

Speed rpm : 250

Rack travel in mm : 5.50...5.70

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 1080

Rack travel in m: 10.60...10.70

2nd speed rpm : 600

Rack travel in m: 11.10...11.30

3rd speed rpm : 720

Rack travel in m: 10.70...10.90

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 11.10...11.30

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.70...9.10

2nd pressure hPa : 340

Rack travel in m: 9.30...9.40

3rd pressure hPa : 470

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 600

Del.quantity cm3/ : 182.0...188.0

1000 s: (179.0...191.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 130.0...132.0

1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 130.0...150.0

1000 s: (126.0...154.0)

Rack travel in mm : 19.50...21.00

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 d
Edition : 07.02.89
Replaces : 9.1.89
Test oil : ISO-4113

Combination no. : 0 401 846 549

Injection pump
Pump designation : PE6P100A820LS503
EP type number : 0 411 806 197
Governor
Governor design. : RGV250...1000PA811
Governor no. : 0 421 813 556

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AX,BX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 16.5...16.7

100 s: (16.3...16.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.7...7.9

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.40

2nd speed rpm : 400

travel mm : 2.20...2.80

3rd speed rpm : 650

travel mm : 4.50...5.10

4th speed rpm : 1050

travel mm : 8.50...8.70

5th speed rpm : 1140

travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 900

Del.quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 13.20
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1140...1170
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 250...350

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 14.20...14.30
2nd speed rpm : 550
Rack travel in m: 15.00...15.30
3rd speed rpm : 750
Rack travel in m: 14.80...15.00
4th speed rpm : 850
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.90...13.30
2nd pressure hPa : 400
Rack travel in m: 14.10...14.20
3rd pressure hPa : 300
Rack travel in m: 13.40...13.60

START CUT-OUT

FO4

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 170.0...174.0
1000 s: (168.0...176.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack travel: 13.20
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 d1
Edition : 07.02.89
Replaces : 9.1.89
Test oil : ISO-4113

Combination no. : 0 401 846 549A

Injection pump
Pump designation : PE6P100A820LS503
EP type number : 0 411 806 197
Governor
Governor design. : RQV250...1000PA811
Governor no. : 0 421 813 556

Customer-spec. information
Customer : ENASA

Engine : 95 T1 BV

1st version kW : 165.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

F05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 16.5...16.7

100 s: (16.3...16.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.7...7.9

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 400
travel mm : 2.20...2.80

3rd speed rpm : 650
travel mm : 4.50...5.10

4th speed rpm : 1050
travel mm : 8.50...8.70

5th speed rpm : 1140
travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 900

Del.quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:

1st rack travel in: 13.20
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 10...18

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 250...350

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 14.20...14.30
2nd speed rpm : 550
Rack travel in m: 15.00...15.30
3rd speed rpm : 750
Rack travel in m: 14.80...15.00
4th speed rpm : 850
Rack travel in m: 14.40...14.60

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.90...13.30
2nd pressure hPa : 400
Rack travel in m: 14.10...14.20
3rd pressure hPa : 300

F06

Rack travel in m: 13.40...13.60

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm³/ : 170.0...174.0
1000 s: (168.0...176.0)
Speed rpm : 450
Del.quantity cm³/ : 90.0...94.0
1000 s: (88.0...96.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 130.0...132.0
1000 s: (127.0...135.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 1030...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 d2
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 846 549B
 Injection pump
 Pump designation : PE6P100A820LS503
 EP type number : 0 411 806 197
 Governor
 Governor design. : RQV250...1000PA811
 Governor no. : 0 421 813 556

Customer-spec. information
 Customer : ENASA

Engine : 95 T1 AW

1st version kW : 155.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

F07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 13.30...13.40

Del.quantity cm3/ : 15.0...15.2

100 s: (14.8...15.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.7...7.9

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40

2nd speed rpm : 400
 travel mm : 2.20...2.80

3rd speed rpm : 650
 travel mm : 4.50...5.10

4th speed rpm : 1050
 travel mm : 8.50...8.70

5th speed rpm : 1140
 travel mm : 9.70...10.10

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1040

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 900

Del.quantity : 150.0...152.0

1000 : (148.0...154.0)

Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 12.30
Speed rpm : 1030...1040
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 10...18

Testing:
Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 250...350

TORQUE CONTROL
Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 980
Rack travel in m: 13.30...13.40
2nd speed rpm : 550
Rack travel in m: 14.00...14.30
3rd speed rpm : 750
Rack travel in m: 13.80...14.00
4th speed rpm : 850
Rack travel in m: 13.50...13.70

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.30...13.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 12.70...13.00
2nd pressure hPa : 260
Rack travel in m: 13.10...13.20

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 700
Del.quantity cm3/ : 143.0...147.0
1000 s: (141.0...149.0)
Speed rpm : 450
Del.quantity cm3/ : 89.0...93.0
1000 s: (87.0...95.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 127.0...129.0
1000 s: (124.0...132.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.30
Speed rpm : 1030...1040

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 180.0...200.0
1000 s: (176.0...204.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 e
Edition : 07.02.89
Replaces : 24.6.88
Test oil : ISO-4113

Combination no. : 0 401 846 552

Injection pump
Pump designation : PE6P100A820LS503-1
EP type number : 0 411 806 198
Governor
Governor design. : RQ250/1000PA352-1
Governor no. : 0 421 801 412

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AZ,CZ

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.85...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 16.5...16.7

100 s: (16.3...16.9)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 16.00...17.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 900

Del.quantity : 165.0...167.0

1000 : (163.0...169.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.5

Testing:

1st rack travel in: 13.20

Speed rpm : 1045...1060

2nd rack travel in: 4.00

Speed rpm : 1100...1130

4th rack travel in: 1200

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 350...390

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 980

Rack travel in m: 14.20...14.30

2nd speed rpm : 700

Rack travel in m: 15.00...15.50

3rd speed rpm : 825

Rack travel in m: 14.40...14.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 12.90...13.30

2nd pressure hPa : 400

Rack travel in m: 14.10...14.20

3rd pressure hPa : 300

Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700

Del.quantity cm3/ : 170.0...174.0

1000 s: (168.0...176.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 130.0...132.0

1000 s: (127.0...135.0)

BREAKAWAY

1st version

F10

1mm rack travel less than

full load rack tr: 13.20

Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150.0...170.0

1000 s: (146.0...174.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 h
Edition : 30.09.88
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 561

Injection pump
Pump designation : PE6P120A320RS519
EP type number : 0 411 826 145
Governor
Governor design. : RQ275/1050PA899
Governor no. : 0 421 801 460

Customer-spec. information
Customer : RVI

Engine : MIHS 06.20.45

1st version kW : 185.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 16.7...16.9

100 s: (16.4...17.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Aneroid pressure h: 700

Del.quantity : 167.0...169.0

1000 : (164.0...172.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.00

Speed rpm : 1110...1125
2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 5.0

Testing:

Speed rpm : 200
Minimum rack travel: 6.70
Speed rpm : 275
Rack travel in mm : 4.90...6.10
Rack travel in mm : 2.00
Speed rpm : 275...315

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.00...11.10

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.40...9.60

2nd pressure hPa : 260

Rack travel in m: 10.50...10.60

3rd pressure hPa : 220

Rack travel in m: 9.60...9.80

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 750

Del.quantity cm3/ : 159.0...165.0

1000 s: (156.0...168.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 104.0...106.0

1000 s: (101.0...109.0)

BREAKAWAY

1st version

F12

1mm rack travel less than

full load rack tr: -1.00

Speed rpm : 1110...1125

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 140.0...160.0

1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275

Rack travel in mm : 5.90...6.10

Del.quantity cm3/ : 12.0...18.0

1000 s: (9.0...21.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 c
Edition : 07.04.89
Replaces : 4.85
Test oil : ISO-4113

Combination no. : 0 401 846 723

Injection pump
Pump designation : PE6P110A320LS3805
EP type number : 0 411 816 718
Governor
Governor design. : RQ300/1150PA187-2R
Governor no. : 0 421 801 112

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 158.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 12.2...12.4

100 s: (11.9...12.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.3...8.5

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 122.0...124.0

1000 : (119.5...126.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.2

Testing:

1st rack travel in: 11.50

Speed rpm : 1190...1200

2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.4

Testing:

Speed rpm : 100
Minimum rack trave: 9.90
Speed rpm : 300
Rack travel in mm : 8.30...8.50
Rack travel in mm : 2.00
Speed rpm : 430...470

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.50...12.60
2nd speed rpm : 600
Rack travel in m: 12.50...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 114.0...118.0
1000 s: (111.0...121.0)
Spread cm3 : 6.00
1000 s: (9.)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 c 1
Edition : 4.4.89
Replaces : 22.10.86
Test oil : ISO-4113

Combination no. : 0 401 846 749

Injection pump
Pump designation : PE6P110A320LS3805
EP type number : 0 411 816 718
Governor
Governor design. : RQ300/1150PA187-6
Governor no. : 0 421 801 155

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 421

1st version kW : 159.0
Rated speed : 2300
2nd version kW : 159.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6-3-5-2-4-1

Phasing : 0-45-120-165-240-285
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 13.3...13.5
100 s: (13.0...13.7)

Spread cm3 : 0.4
100 s: (0.8)

2nd speed rpm : 300
Rack travel in mm : 7.80...8.00
Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.0)
Spread cm3 : 0.4
100 s: (0.8)

1st speed rpm : 1150
Rack travel in mm : 12.5...12.6
Del.quantity cm3/ : 12.8...13.0*
100 s: (12.5...13.3)
Spread cm3 : 0.4
100 s: (0.8)
2nd speed rpm : 300
Rack travel in mm : 8.30...8.50
Del.quantity cm3/ : 1.2...1.8 *
100 s: (-)
Spread cm3 : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 650
Rack travel in mm : 13.20...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150
Del.quantity : 133.0...135.0
1000 : (130.5...137.5)
Spread cm3 : 4.00
1000 : (8.00)

2nd version

Speed rpm : 1150
Del.quantity cm3/ : 128.0...130.0
1000 s: (125.0...133.0)
Spread cm3 : 4.0
1000 s: (8.0)

RATED SPEED

1st version

Setting point:

Speed rpm : 650
Rack travel in mm : 13.6

Testing:

1st rack travel in: 10.70
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

2nd version

Setting point:

Speed rpm : 650
Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.50
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300
Rack travel in mm : 7.90

Testing:

Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 7.80...8.00
Rack travel in mm : 2.00
Speed rpm : 410...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 112.0...116.0
1000 s: (109.0...119.0)
Spread cm3 : 6.00
1000 s: (9.00)

2nd version

Speed rpm : 600
Del.quantity cm3/ : 120.0...124.0
1000 s: (117.0...127.0)
Spread cm3 : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1195...1210

2nd version

1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

Version 1: Without return-flow
restriction
Version 2: With return-flow restriction

* Version 2

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 c 3
Edition : 07.04.89
Replaces : 4.85
Test oil : ISO-4113

Combination no. : 0 401 846 755

Injection pump
Pump designation : PE6P110A320LS3805
EP type number : 0 411 816 718
Governor
Governor design. : RQ300/1150PA187-8
Governor no. : 0 421 801 180

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 148.0
Rated speed : 2300
2nd version kW : 148.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

F17

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285
Phasing
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1150
Rack travel in mm : 12.40...12.50
Del.quantity cm3/ : 12.9...13.1
100 s: (12.6...13.3)
Spread cm3 : 0.4
100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.7...8.9
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.4)
Spread cm3 : 0.4
100 s: (0.7)

1st speed rpm : 1150
Rack travel in mm : 12.6...12.7
Del.quantity cm3/ : 12.7...12.9*
100 s: (12.4...13.2)
Spread cm3 : 0.4
100 s: (0.8)
2nd speed rpm : 300
Rack travel in mm : 8.50...8.70
Del.quantity cm3/ : 1.6...2.2
100 s: (1.3...2.4)
Spread cm3 : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 650
Rack travel in mm : 13.20...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1150

Del.quantity : 129.0...131.0
1000 : (126.5...133.5)
Spread cm3 : 4.00
1000 : (8.00)
2nd version
Speed rpm : 1150
Del.quantity cm3/ : 127.0...129.0
1000 s: (124.0...132.0)
Spread cm3 : 4.00
1000 s: (8.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 650
Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.40
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.50

2nd version

Setting point:
Speed rpm : 650
Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.60
Speed rpm : 1195...1210
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.1

Testing:

Speed rpm : 100
Minimum rack trave: 8.50
Speed rpm : 300
Rack travel in mm : 7.00...7.20
Rack travel in mm : 2.00
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/ : 105.0...109.0
1000 s: (102.0...112.0)
Spread cm3 : 6.00
1000 s: (9.00)

2nd version

Speed rpm : 600
Del.quantity cm3/ : 117.0...121.0
1000 s: (114.0...124.0)
Spread cm3 : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1190...1200

2nd version

1mm rack travel less than
full load rack tr: 11.60
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

See VDT-I-401/102.

Version 1: Without return-flow
restriction
Version 2: With return-flow restriction

* Version 2

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 q
Edition : 31.03.89
Replaces : 12.6.87
Test oil : ISO-4113

Combination no. : 0 401 846 759

Injection pump
Pump designation : PE6P110A32ORS3108Y
EP type number : 0 411 816 729
Governor
Governor design. : RQV250...1100PA649
Governor no. : 0 421 815 346

Customer-spec. information
Customer : VOLVO

Engine : THD100EC

1st version kW : 180.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 13.8...14.0

100 s: (13.5...14.3)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.2...5.4

Del.quantity cm³/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.10...1.30

2nd speed rpm : 500
travel mm : 4.10...4.90

3rd speed rpm : 700
travel mm : 6.30...6.70

4th speed rpm : 950
travel mm : 6.30...6.70

5th speed rpm : 1100
travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 138.0...140.0

1000 : (135.0...143.0)

Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 10.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 250
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.10...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 275
Rack travel in m: 9.90...10.00
3rd pressure hPa : 400
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 105.5...108.5
1000 s: (103.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 30.0...34.0
1000 s: (27.5...36.5)
Spread cm³ : 3.00
1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 10,0 q1
Edition : 07.03.88
Replaces : 12.6.87
Test oil : ISO-4113
Combination no. : 0 401 846 760
Injection pump
Pump designation : PE6P110A320RS3108X
EP type number : 0 411 816 730
Governor
Governor design. : RQV250...1100PA649
Governor no. : 0 421 813 346

Customer-spec. information
Customer : VOLVO

Engine : THD100ED

1st version kW : 203.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del.quantity cm³/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 3.0...3.4

100 s: (2.7...3.6)

Spread cm³ : 0.3

100 s: (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.30

2nd speed rpm : 500

travel mm : 4.10...4.90

3rd speed rpm : 700

travel mm : 6.30...6.70

4th speed rpm : 950

travel mm : 6.30...6.70

5th speed rpm : 1100

travel mm : 7.00...7.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm³ : 4.00
 1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 61...69

Testing:

1st rack travel in: 11.10
Speed rpm : 1160...1170
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 6.70
Speed rpm : 250
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION

Speed rpm : 250...425

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.30...9.40
2nd pressure hPa : 275
Rack travel in m: 9.60...9.70
3rd pressure hPa : 650
Rack travel in m: 11.70...11.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 105.5...108.5
 1000 s: (103.0...111.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1160...1170

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 170.0...200.0
 1000 s: (166.0...204.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm³/ : 30.0...34.0
 1000 s: (27.5...36.5)
Spread cm³ : 3.00
 1000 s: (6.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 o 1
 Edition : 07.04.89
 Replaces : 4.85
 Test oil : ISO-4113
 Combination no. : 0 401 846 762
 Injection pump
 Pump designation : PE6P110A32OLS3805-10
 EP type number : 0 411 816 740
 Governor
 Governor design. : RQ300/1000PA187
 Governor no. : 0 421 801 182

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 140.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.50...11.60

Del. quantity cm³/ : 12.0...12.2

100 s: (11.7...12.5)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del. quantity cm³/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del. quantity : 120.5...122.5

1000 : (117.5...125.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.60

Speed rpm : 1040...1050

2nd rack travel in: 4.00
Speed rpm : 1075...1105

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 430...470

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 102.0...106.0
1000 s: (99.0...109.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.60
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 8,0 m 3
Edition : 09.03.87
Replaces : 4.85
Test oil : ISO-4113

Combination no. : 0 401 846 775

Injection pump
Pump designation : PE6P110A720RS3076
EP type number : G 411 816 720
Governor
Governor design. : RQ750PA528
Governor no. : 0 421 801 126

Customer-spec. information
Customer : SCANIA

Engine : DS8 42

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.30...3.40
: (3.25...3.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.5

100 s: (0.7)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 117.0...119.0

1000 : (115.0...121.0)

Spread cm3 : 5.00

1000 : (7.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 10.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 773...783

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 190.0...240.0

1000 s: (-)

Rack travel in mm : 20.00...21.00

HIGH IDLE

1st version

Rack travel in mm : 4.90...5.10

Remarks:

:

ADDITIONAL INFORMATION

Check and set without RÖBO diaphragm

For comb. with letter index see
VDT-I-400/116.

For sealing see VDT-I-400/117.

Scania test specifications taken over
on Aug. 22, 1983

Engine start of delivery: 18° BTDC

Firing sequence of engine:
1-5-3-6-2-4.

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 r
Edition : 07.04.89
Replaces : 31.7.87
Test oil : ISO-4113

Combination no. : 0 401 846 805

Injection pump
Pump designation : PE6P110A320LS3814-10
EP type number : 0 411 816 741
Governor
Governor design. : RQ300/1150PA187-6
Governor no. : 0 421 801 155

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM421

1st version kW : 159.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.40...12.50

Del.quantity cm3/ : 13.2...13.4

100 s: (12.9...13.6)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.3...8.5

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.20...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Del.quantity : 132.0...134.0

1000 : (129.5...136.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.50

Speed rpm : 1190...1200

2nd rack travel in: 4.00
Speed rpm : 1235...1265
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.4

Testing:

Speed rpm : 100
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 8.30...8.50
Rack travel in mm : 2.00
Speed rpm : 430...470

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 110.0...114.0 -
1000 s: (107.0...117.0)
Spread cm3 : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

: KÄßBOHRER

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,1 a
Edition : 07.04.89
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 846 813

Injection pump
Pump designation : PE6P120A32ORS3165
EP type number : 0 411 826 747
Governor
Governor design. : RGV300...1050PA657-2
Governor no. : 0 421 813 419

Customer-spec. information
Customer : VOLVO/B

Engine : TD121K

1st version kW : 228.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70
: (2.55...2.75)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 21.7...21.9
100 s: (21.4...22.2)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.5...4.7
Del.quantity cm3/ : 1.7...2.1
100 s: (1.4...2.4)

Spread cm3 : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL
1st speed rpm : 300
travel mm : 1.60...1.80
2nd speed rpm : 450
travel mm : 3.60...4.00
3rd speed rpm : 700
travel mm : 6.40...6.60
4th speed rpm : 950
travel mm : 6.40...6.60
5th speed rpm : 1110
travel mm : 7.80...8.00

GUIDE SLEEVE POSITION
Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 1000

Del.quantity : 217.0...219.0
1000 : (214.0...222.0)
Spread cm³ : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 58...66

Testing:
1st rack travel in: 11.30
Speed rpm : 1105...1115
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:
Speed rpm : 100
Minimum rack travel: 6.10
Speed rpm : 300
Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

Speed rpm : 300...420

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.30...12.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 125
Rack travel in m: 8.90...9.00
3rd pressure hPa : 655
Rack travel in m: 11.90...12.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1000
Del.quantity cm³/ : 217.0...223.0
1000 s: (215.0...225.0)

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.30
Speed rpm : 1105...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 240.0...270.0
1000 s: (236.0...274.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.50...4.70
Del.quantity cm³/ : 17.0...21.0
1000 s: (14.5...24.5)
Spread cm³ : 4.00
1000 s: (7.00)

Remarks:

:
Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 s
Edition : 07.04.89
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 846 823

Injection pump
Pump designation : PE6P110A320LS3835
EP type number : 0 411 816 749
Governor
Governor design. : RQ300/900PA187-14
Governor no. : 0 421 801 357

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 150.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-45-120-165-240-285

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.20...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 126.0...128.0

1000 : (123.5...130.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.6

Testing:

1st rack travel in: 11.50

Speed rpm : 940...950

2nd rack travel in: 4.00
Speed rpm : 985...1015
4th rack travel in: 1100
Speed rpm : 0.00...1.50

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:
Speed rpm : 100
Minimum rack travel: 9.30
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 430...470

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 124.0...128.0
1000 s: (121.0...131.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 12,2 a
 Edition : 31.03.89
 Replaces : 7.1.88
 Test oil : ISO-4113
 Combination no. : 0 401 846 827
 Injection pump
 Pump designation : PE6P120A32ORS3178
 EP type number : 0 411 826 752
 Governor
 Governor design. : RQV250...950PA657-11
 Governor no. : 0 421 813 568

Customer-spec. information
 Customer : VOLVO

Engine : TD122F

1st version kW : 257.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
 Rack travel in mm : 4.6...4.8
 Del.quantity cm3/ : 1.7...2.2
 100 s: (1.4...2.5)
 Spread cm3 : 0.5
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
 travel mm : 1.00...1.40
 2nd speed rpm : 450
 travel mm : 3.60...4.20
 3rd speed rpm : 700
 travel mm : 6.40...6.60
 4th speed rpm : 985
 travel mm : 8.20...8.40
 5th speed rpm : 1060
 travel mm : 9.60...10.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1000
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 700
 Aneroid pressure h: 900

Del.quantity : 229.0...231.0
1000 : (226.0...234.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 60...68

Testing:

1st rack travel in: 12.00
Speed rpm : 980...990
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 5...13

Testing:

Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 250
Rack travel in mm : 4.60...4.80

CONSTANT REGULATION

Speed rpm : 250...380

Aneroid/Altitude
Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.00...13.10

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.80...10.00
2nd pressure hPa : 100
Rack travel in m: 10.20...10.30
3rd pressure hPa : 570
Rack travel in m: 12.70...12.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 163.0...165.0
1000 s: (160.0...168.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 980...990

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 220.0...260.0
1000 s: (216.0...264.0)
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 17.5...22.5
1000 s: (14.5...25.5)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 c
Edition : 17.02.89
Replaces : 5.8.88
Test oil : ISO-4113

Combination no. : 0 401 846 860

Injection pump
Pump designation : PE6P120A32ORS3200
EP type number : 0 411 826 766
Governor
Governor design. : RQV250...1000PA808-1
Governor no. : 0 421 813 660

Customer-spec. information
Customer : ENASA

Engine : 96 R1 BX

1st version kW : 265.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

G07

Prestroke mm : 3.80...3.90
: (3.75...3.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.7

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.10...2.60

3rd speed rpm : 700
travel mm : 4.70...5.30

4th speed rpm : 1055
travel mm : 7.90...8.10

5th speed rpm : 1145
travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 249.0...251.0
1000 : (246.0...254.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 10.90
Speed rpm : 1050...1060
2nd rack travel in: 4.00
Speed rpm : 1130...1160
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack travel: 5.00
Speed rpm : 250
Rack travel in mm : 3.30...3.70

CONSTANT REGULATION
Speed rpm : 250...330

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1200
Rack travel mm : 11.90...12.00

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.90
2nd pressure hPa : 680
Rack travel in m: 11.30...11.40
3rd pressure hPa : 420
Rack travel in m: 9.50...9.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 1200
Speed rpm : 900
Del.quantity cm3/ : 244.0...250.0
1000 s: (241.0...253.0)

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 149.0...152.0
1000 s: (146.5...154.5)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.90
Speed rpm : 1050...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 155.0...175.0
1000 s: (151.0...179.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 e
Edition : 17.02.89
Replaces : 11.7.88
Test oil : ISO-4113

Combination no. : 0 401 846 861

Injection pump
Pump designation : PE6P120A32ORS3176-1
EP type number : 0 411 826 767
Governor
Governor design. : RQV250...1050PA808
Governor no. : 0 421 813 553

Customer spec. information
Customer : ENASA

Engine : 96 R1 AX

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90
: (3.75...3.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 650

Rack travel in mm : 12.40...12.50

Del.quantity cm³/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 4.2...4.4

Del.quantity cm³/ : 2.5...3.1

100 s: (2.2...3.4)

Spread cm³ : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.00...1.40

2nd speed rpm : 350
travel mm : 2.10...2.60

3rd speed rpm : 700
travel mm : 4.50...5.10

4th speed rpm : 1095
travel mm : 8.00...8.20

5th speed rpm : 1200
travel mm : 9.20...9.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1180

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 650

Aneroid pressure h: 900

Del.quantity : 212.0...214.0

1000 : (209.0...217.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 50...58

Testing:
1st rack travel in: 11.40
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 11...19

Testing:
Speed rpm : 100
Minimum rack travel: 5.90
Speed rpm : 250
Rack travel in mm : 4.20...4.40

CONSTANT REGULATION
Speed rpm : 250...350

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 12.40...12.50

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.90...10.30
2nd pressure hPa : 390
Rack travel in m: 11.90...12.00
3rd pressure hPa : 160
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1030
Del.quantity cm3/ : 215.0...221.0
1000 s: (212.0...224.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm3/ : 151.0...153.0
1000 s: (148.0...156.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.40
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 155.0...175.0
1000 s: (151.0...179.0)
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension
3.2...3.4 mm.
Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13,8 c1
Edition : 29.03.89
Replaces : 16.6.88
Test oil : ISO-4113

Combination no. : 0 401 846 879

Injection pump
Pump designation : PE6P120A720RS3192
EP type number : 0 411 826 761
Governor
Governor design. : RGV300...900PA857-1
Governor no. : 0 421 813 683

Customer-spec. information
Customer : IVECO-UNIC

Engine : 8210.42.101

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.40...3.50
: (3.35...3.55)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.10...13.20

Del.quantity cm3/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.7)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 0.70...0.90

2nd speed rpm : 550

travel mm : 4.00...4.60

3rd speed rpm : 800

travel mm : 6.60...6.90

4th speed rpm : 900

travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 950

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del.quantity : 236.0...238.0

1000 : (233.0...241.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 57...65

Testing:

1st rack travel in: 12.10
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 4...12

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 370...490

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 13.20...13.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 520
Rack travel in m: 12.20...12.30
3rd pressure hPa : 330
Rack travel in m: 9.80...10.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 500
Del.quantity cm³/ : 230.0...236.0
1000 s: (227.0...239.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 111.0...113.0
1000 s: (108.0...116.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.10
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 235.0...265.0
1000 s: (231.0...269.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 18.0...24.0
1000 s: (15.0...27.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 s 9
Edition : 07.04.89
Replaces : 24.6.88
Test oil : ISO-4113
Combination no. : 0 401 846 880
Injection pump
Pump designation : PE6P110A320LS3835-1
EP type number : 0 411 816 755
Governor
Governor design. : RQ300/1050PA187-19
Governor no. : 0 421 801 428

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM441

1st version kW : 160.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.00...13.10

Del.quantity cm3/ : 12.6...12.8

100 s: (12.2...13.0)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.3...8.6

Del.quantity cm3/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.80...14.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 126.0...128.0

1000 : (122.5...130.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.1

Testing:

1st rack travel in: 12.00

Speed rpm : 1090...1100

2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.0

Testing:

Speed rpm : 200
Minimum rack trave: 8.70
Speed rpm : 300
Rack travel in mm : 6.80...7.20
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
2nd speed rpm : 600
3rd speed rpm : 900

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm3/ : 138.0...142.0
1000 s: (135.0...145.0)
Spread cm3 : 7.00
1000 s: (10.)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SSC 10,5 e
Edition : 07.02.89
Replaces : 5.8.88
Test oil : ISO-4113

Combination no. : 0 401 846 884

Injection pump
Pump designation : PE6P130A320LS3210
EP type number : 0 411 836 713
Governor
Governor design. : RQV400...750PA607
Governor no. : 0 421 813 313

Customer spec. information
Customer : SSCM

Engine : UD 25.L6

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.50...14.60

Del.quantity cm3/ : 38.8...39.1

100 s: (38.4...39.4)

Spread cm3 : 0.6

100 s: (1.0)

2nd speed rpm : 400.0
Rack travel in mm : 5.4...5.6
Del.quantity cm3/ : 2.7...3.3
100 s: (2.3...3.7)
Spread cm3 : 1.0
100 s: (1.4)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 400
travel mm : 0.20...0.50
2nd speed rpm : 500
travel mm : 1.90...2.10
3rd speed rpm : 650
travel mm : 1.90...2.10
4th speed rpm : 750
travel mm : 4.50...5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 388.0...391.0
1000 : (384.5...394.5)
Spread cm3 : 6.00
1000 : (10.00)

RATED SPEED

1st version

Testing:
1st rack travel in: 13.50
Speed rpm : 750...755

2nd rack travel in: 4.00
Speed rpm : 776...789
4th rack travel in: 950
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 400
Rack travel in mm : 5.5

Testing:
Speed rpm : 100
Minimum rack trave: 7.00
Speed rpm : 400
Rack travel in mm : 5.40...5.60
Rack travel in mm : 2.00
Speed rpm : 650...750

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.50
Speed rpm : 750...755

LOW IDLE

Speed rpm : 400
Rack travel in mm : 5.40...5.60
Del.quantity cm³/ : 27.0...33.0
1000 s: (23.0...37.0)
Spread cm³ : 10.00
1000 s: (14.00)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 s11
 Edition : 07.02.89
 Replaces : 9.1.89
 Test oil : ISO-4113
 Combination no. : 0 401 846 889
 Injection pump
 Pump designation : PE6P110A320LS3835-1
 EP type number : 0 411 816 755
 Governor
 Governor design. : RQV300...900PA524-10
 Governor no. : 0 421 813 549

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 441

1st version kW : 150.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.7...8.9

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm3 : 0.4

100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 500

travel mm : 3.50...3.80

3rd speed rpm : 950

travel mm : 8.30...8.70

4th speed rpm : 1000

travel mm : 9.40...10.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 950

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 126.0...128.0

1000 : (123.5...130.5)

Spread cm³ : 4.00
 1000 : (8.00)

Remarks:

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:

1st rack travel in: 11.90
Speed rpm : 955...965
2nd rack travel in: 4.00
Speed rpm : 1000...1030
4th rack travel in: 1100
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 17...25

Testing:

Speed rpm : 200
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION

Speed rpm : 300...450

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 122.0...126.0
 1000 s: (119.0...129.0)
Spread cm³ : 6.00
 1000 s: (8.)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 955...965

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
 1000 s: (126.0...154.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : BA0 7,1 a
Edition : 29.03.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 846 892

Injection pump
Pump designation : PE6P110A320RS3219
EP type number : 0 411 816 759
Governor
Governor design. : RQV325...1500PA901
Governor no. : 0 421 813 719

Customer-spec. information
Customer : BAUDOUIN

Engine : 6F12 SR-SRY

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
: (3.55...3.75)
Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 3- 6- 5- 2

Phasing : 0-75-120-195-240-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 14.30...14.40

Del.quantity cm³/ : 21.7...22.0

100 s: (21.4...22.2)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0
Rack travel in mm : 5.1...5.3
Del.quantity cm³/ : 2.2...2.7
100 s: (1.9...2.9)
Spread cm³ : 0.4
100 s: (0.7)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325
travel mm : 1.00...1.40
2nd speed rpm : 1100
travel mm : 4.60...5.00
3rd speed rpm : 1500
travel mm : 7.60...7.80

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1650
Rack travel in mm : 7.50...10.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 900
Del.quantity : 217.0...220.0
1000 : (214.5...222.5)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control Lever
position degrees: 49...57

Testing:
1st rack travel in: 13.30
Speed rpm : 1540...1550
2nd rack travel in: 4.00
Speed rpm : 1680...1710
4th rack travel in: 1800
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 12...20

Testing:
Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 325
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION
Speed rpm : 370...480

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 14.30...14.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 13.30...13.40
2nd pressure hPa : 300
Rack travel in m: 13.60...13.70

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 900
Speed rpm : 1500
Del.quantity cm3/ : 201.0...208.0
1000 s: (198.5...210.5)
Spread cm3 : 8.00
1000 s: (11.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 190.0...194.0
1000 s: (187.5...196.5)

BREAKAWAY

G20

1st version
1mm rack travel less than
full load rack tr: 13.30
Speed rpm : 1540...1550

INTERMEDIATE RATED SPEED
Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 325
Rack travel in mm : 5.10...5.30
Del.quantity cm3/ : 22.0...27.0
1000 s: (19.5...29.5)
Spread cm3 : 4.50
1000 s: (7.50)

Remarks:
:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 L 4
 Edition : 07.02.89
 Replaces : 2.12.88
 Test oil : ISO-4113

Combination no. : 0 401 846 897

Injection pump
 Pump designation : PE6P120A320LS3815-13
 EP type number : 0 411 826 782
 Governor
 Governor design. : RQ300/1050PA840-1
 Governor no. : 0 421 801 418

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 441 A

1st version kw : 191.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.60...3.70
 : (3.55...3.75)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.30...12.50

Del.quantity cm3/ : 19.0...19.2

100 s: (18.7...19.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.1...5.4

Del.quantity cm3/ : 1.4...2.2
 100 s: (1.1...2.5)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 700

Del.quantity : 190.0...192.0

1000 : (187.0...195.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.70
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1165...1195
4th rack travel in: 1250
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.2

Testing:

Speed rpm : 100
Minimum rack travel: 6.60
Speed rpm : 300
Rack travel in mm : 5.10...5.40
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : 0.90
2nd speed rpm : 1050
Rack travel in m: 11.70...11.90
3rd speed rpm : 700
Rack travel in m: 12.70...12.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 12.30...12.50

Measurement

Speed 1/min : 600

1st pressure hPa : 350
Rack travel in m: 10.30...10.50
2nd pressure hPa : 550
Rack travel in m: 11.90...12.10
3rd pressure hPa : 780
Rack travel in m: 12.40...12.50 *
4th pressure hPa : 1100
Rack travel in m: 12.65...12.75
5th pressure hPa : -
Rack travel in m: 9.60...9.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1100
Speed rpm : 1050
Del.quantity cm3/ : 184.0...187.0
1000 s: (181.0...190.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: 1100
Speed rpm : 700
Del.quantity cm3/ : 204.0...208.0
1000 s: (201.0...211.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 129.0...131.0
1000 s: (126.0...134.0)
Spread cm3 : 8.00
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 10.70
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

Remarks:

* Increase in control-rod travel with respect to setting at least 0.1 mm

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 14,5 a
Edition : 29.03.89
Replaces : 11.12.87
Test oil : ISO-4113

Combination no. : 0 401 848 082

Injection pump
Pump designation : PE8P110A520/5LS851
EP type number : 0 411 818 046
Governor
Governor design. : RQ250/1150PA688
Governor no. : 0 421 801 231

Customer-spec. information
Customer : MAN

Engine : D2848T

1st version kW : 245.0
Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00

G23

Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 10.80...10.90

Del.quantity cm3/ : 14.3...14.5

100 s: (14.0...14.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.8...2.4

100 s: (1.5...2.6)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 1000

Del.quantity : 143.0...145.0

1000 : (140.5...147.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.80

Speed rpm : 1195...1210

2nd rack travel in: 4.00

Speed rpm : 1280...1310
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 250
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.80...10.90
2nd speed rpm : 700
Rack travel in m: 10.80...11.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.80...10.90

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.60...9.80
2nd pressure hPa : 290
Rack travel in m: 10.50...10.60
3rd pressure hPa : 230
Rack travel in m: 10.00...10.20

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 700
Del.quantity cm³/ : 135.0...141.0
1000 s: (132.0...144.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 108.0...110.0
1000 s: (105.5...112.5)
Spread cm³ : -
1000 s: (7.50)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.80
Speed rpm : 1195...1210

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 4.90...5.10
Del.quantity cm³/ : 18.0...24.0
1000 s: (15.5...26.5)
Spread cm³ : 4.50
1000 s: (7.50)

Remarks:

: MAN-NR. 2-7353

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 b4
Edition : 10.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 848 715
Injection pump
Pump designation : PE8P120A920/5LS3804
EP type number : 0 411 828 705
Governor
Governor design. : RQ300/1200PA356
Governor no. : 0 421 801 070

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8280.02.000

1st version kW : 257.4
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-
7- 2

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 17.3...17.7

100 s: (17.0...18.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 2.8...3.6

100 s: (2.5...3.9)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 173.0...177.0

1000 : (170.0...180.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 15.8

Testing:

1st rack travel in: 8.30

Speed rpm : 1245...1260

2nd rack travel in: 4.00

Speed rpm : 1280...1310

4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 405...445

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1200
Rack travel in m: 9.30...9.40
2nd speed rpm : 650
Rack travel in m: 9.30...9.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1245...1260

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 b3
Edition : 10.02.89
Replaces : 5.85
Test oil : ISO-4113

Combination no. : 0 401 848 718

Injection pump
Pump designation : PE8P120A920/5LS3804
EP type number : 0 411 828 705
Governor
Governor design. : RGV300...1200PA357
Governor no. : 0 421 813 188

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8280.02.020

1st version kW : 257.4
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 8- 4- 3- 6- 5-
7- 2

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.30...9.40

Del.quantity cm3/ : 17.3...17.7

100 s: (17.0...18.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 2.8...3.6

100 s: (2.5...3.9)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.10...1.50

2nd speed rpm : 450
travel mm : 2.60...3.30

3rd speed rpm : 900
travel mm : 5.60...6.00

4th speed rpm : 1200
travel mm : 7.90...8.10

5th speed rpm : 1500
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1230

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del.quantity : 173.0...177.0

1000 : (170.0...180.0)

Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 54...62

Testing:
1st rack travel in: 8.30
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1315...1345
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 8...16

Testing:
Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION
Speed rpm : 340...445

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 8.30
Speed rpm : 1240...1250

Remarks:

:
Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 b4
Edition : 10.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 848 719
Injection pump
Pump designation : PE8P120A920/5LS3804
EP type number : 0 411 828 705
Governor
Governor design. : RQ300/1200PA356
Governor no. : 0 421 801 070

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8280.02.405

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 8- 4- 3- 6- 5-
 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 9.30...9.40
Del.quantity cm3/ : 17.3...17.7
100 s: (17.0...18.0)
Spread cm3 : 0.5
100 s: (0.9)
2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 2.8...3.6
100 s: (2.5...3.9)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 650
Rack travel in mm : 15.20...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del.quantity : 173.0...177.0
1000 : (170.0...180.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Setting point:
Speed rpm : 650
Rack travel in mm : 15.8

Testing:
1st rack travel in: 8.30
Speed rpm : 1245...1260
2nd rack travel in: 4.00
Speed rpm : 1280...1310
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.0

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 400...440

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.30...9.40

2nd speed rpm : 650

Rack travel in m: 9.30...9.50

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.30

Speed rpm : 1245...1260

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 17,2 b6
 Edition : 10.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 848 731
 Injection pump
 Pump designation : PE8P120A920/5LS3804
 EP type number : 0 411 828 705
 Governor
 Governor design. : RGV300...1200PA506
 Governor no. : 0 421 813 249

Customer-spec. information
 Customer : IVECO-FIAT

1st version kW : 331.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
 x Wall thickness : 8.00X2.00X1000
 x Length mm

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 8- 4- 3- 6- 5-
 : 7- 2

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
 Rack travel in mm : 11.60...11.70
 Del.quantity cm3/ : 24.3...24.7
 100 s: (24.0...25.0)
 Spread cm3 : 0.5
 100 s: (0.9)

2nd speed rpm : 300.0
 Rack travel in mm : 4.9...5.1
 Del.quantity cm3/ : 1.9...2.5
 100 s: (1.6...2.8)
 Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.70
 2nd speed rpm : 450
 travel mm : 2.80...3.40
 3rd speed rpm : 900
 travel mm : 5.50...5.90
 4th speed rpm : 1200
 travel mm : 7.70...7.90
 5th speed rpm : 1500
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1250
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1200
 Aneroid pressure h: 700
 Del.quantity : 243.0...247.0
 1000 : (240.0...250.0)
 Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 55...63

Testing:

1st rack travel in: 10.60

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1360...1390

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 6...14

Testing:

Speed rpm : 100

Minimum rack travel: 6.50

Speed rpm : 300

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

Speed rpm : 310...405

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 11.60...11.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.50...8.60

2nd pressure hPa : 435

Rack travel in m: 10.80...10.90

3rd pressure hPa : 350

Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 1200

Del.quantity cm³/ : 160.0...164.0

1000 s: (157.0...167.0)

BREAKAWAY

H04

1st version

1mm rack travel less than

full load rack tr: 10.60

Speed rpm : 1240...1250

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

7- 2

Note remarks

Test sheet : FIA 17,2 c1
Edition : 10.02.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 848 736

Injection pump
Pump designation : PE8P120A920/5LS3812
EP type number : 0 411 828 709
Governor
Governor design. : RQV300...1200PA357
Governor no. : 0 421 813 188

Customer-spec. information
Customer : IVECO-FIAT

Engine : 8281.02.001

1st version kW : 257.4
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 8- 4- 3- 6- 5-

H05

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)
Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200
Rack travel in mm : 9.30...9.40
Del.quantity cm3/ : 17.3...17.7
100 s : (17.0...18.0)
Spread cm3 : 0.5
100 s : (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 5.9...6.1
Del.quantity cm3/ : 2.8...3.6
100 s : (2.5...3.9)
Spread cm3 : 0.6
100 s : (0.9)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.70
2nd speed rpm : 450
travel mm : 2.70...3.40
3rd speed rpm : 900
travel mm : 5.70...6.10
4th speed rpm : 1200
travel mm : 8.20...8.40
5th speed rpm : 1500
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1200
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1200
Del.quantity : 173.0...177.0
1000 : (170.0...180.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 55...63

Setting point:

Speed rpm : 1200
Rack travel in mm : 16.5

Testing:

1st rack travel in: 8.30
Speed rpm : 1240...1250
2nd rack travel in: 4.00
Speed rpm : 1305...1335
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.0

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 300
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 330...430

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.30
Speed rpm : 1240...1250

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

Note remarks

Combination no. : 0 401 848 762

Customer-spec. information
Customer : DAIMLER-BENZ

1st version kw : 243.0
Rated speed : 2300

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 4.00...4.10
                   : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order      : 8- 7- 2- 6- 3- 5-
                   : 4- 1
```

Phasing : 0-45-90-135-180-225-
270-315
Tolerance \pm - ° : 0.50 (0.75)

Time to cyl. no. : 8

1st speed rpm : 1150

Rack travel in mm : 10.70...10.80

Del.quantity cm³/ : 15.9...16.1

100 s: (15.6...16.4)

Spread cm³ : 0,5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.1)

Spread cm³ : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

1st speed rpm : 300
travel mm : 1.40...1.60

```
2nd speed      rpm      : 800
travel mm      : 6.00...6.20
```

```
3rd speed      rpm      : 1200
travel mm      : 8.00...8.50
```

```
4th speed    rpm : 1300
travel mm    : 9.70...10.30
```

Control-Lever position

Degree: -1
Speed rpm : 1230
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 700
Del.quantity : 159.0...161.0
1000 : (156.0...164.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 46...54

Testing:
1st rack travel in: 9.70
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 15...23

Testing:
Speed rpm : 100
Minimum rack trave: 6.70
Speed rpm : 300
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION
Speed rpm : 300...400

TORQUE CONTROL
Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 10.70...10.80
2nd speed rpm : 750
Rack travel in m: 11.00...11.20
3rd speed rpm : 700
Rack travel in m: 11.00...11.20

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.00...10.30

Measurement
Speed 1/min : 500

1st pressure hPa : 450
Rack travel in m: 10.10...10.20
2nd pressure hPa : 500

Rack travel in m: 10.50...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 173.5...175.5
1000 s: (170.5...178.5)
Spread cm3 : 7.00
1000 s: (12.0)
Aneroid pressure h: 700
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 138.0...140.0
1000 s: (135.0...143.0)
Spread cm3 : 7.00
1000 s: (12.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.70
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

Note remarks

Combination no. : 0 401 848 763

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM422 LA

1st version kW : 276.0
Rated speed : 2300

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

```
Prestroke mm      : 4.00...4.10
                   : (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order      : 8- 7- 2- 6- 3- 5-
                   : 4- 1
```

Phasing : 0-45-90-135-180-225-
270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

1st speed rpm : 1150

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 17.5...17.7

100 s: (17.2...18.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.1...5.3

Del.quantity cm3/ : 1.2...2.0

100 s: (0.9...2.3)

Spread cm^3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

1st speed rpm : 300
travel mm : 1.40...1.60

```
2nd speed      rpm      : 800
  travel mm    : 6.00...6.20
```

```
3rd speed      rpm      : 1200
  travel mm    : 8.00...8.50
```

```
4th speed rpm : 1300
travel mm : 9.70...10.30
```

Control-lever position

Degree: -1

Speed rpm : 1190

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
Aneroid pressure h: 700
Del.quantity : 175.0...177.0
1000 : (172.0...180.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 49...57

Testing:

1st rack travel in: 10.50
Speed rpm : 1190...1200
2nd rack travel in: 4.00
Speed rpm : 1250...1280
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever
position degrees: 13...21

Testing:

Speed rpm : 100
Minimum rack trave: 6.80
Speed rpm : 300
Rack travel in mm : 5.10...5.30

CONSTANT REGULATION

Speed rpm : 300...400

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 11.50...11.60
2nd speed rpm : 750
Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : -
Rack travel mm : 10.20...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : 410
Rack travel in m: 10.50...10.60
2nd pressure hPa : 490
Rack travel in m: 11.10...11.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 750
Del.quantity cm3/ : 187.0...190.0
1000 s: (184.0...193.0)
Spread cm3 : 8.00
1000 s: (12.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 137.0...139.0
1000 s: (134.0...142.0)
Spread cm3 : 8.00
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 c 4
 Edition : 31.03.89
 Replaces : 9.10.87
 Test oil : ISO-4113

Combination no. : 0 401 848 789

Injection pump
 Pump designation : PE8P110A32OLS3842-1
 EP type number : 0 411 818 716
 Governor
 Governor design. : RQ300/1050PA827-3K
 Governor no. : 0 421 803 095

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 213.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 13.2...13.4

100 s: (12.9...13.6)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.8...9.0

Del.quantity cm3/ : 1.5...2.1
 100 s: (1.2...2.3)

Spread cm3 : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.30...1.50

2nd speed rpm : 500
 travel mm : 5.50...5.70

3rd speed rpm : 900
 travel mm : 6.90...7.20

4th speed rpm : 1050
 travel mm : 7.60...7.90

5th speed rpm : 1100
 travel mm : 10.10...10.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 14.70...15.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050

Del.quantity : 132.0...134.0
1000 : (129.5...136.5)
Spread cm3 : 4.00
1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600
Rack travel in mm : 15.2

Testing:

1st rack travel in: 11.90
Speed rpm : 1095...1110
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.9

Testing:

Speed rpm : 200
Minimum rack trave: 10.50
Speed rpm : 300
Rack travel in mm : 8.80...9.00
Rack travel in mm : 2.00
Speed rpm : 450...490
Speed rpm : 550
Maximum rack trave: 1.80

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 12.90...13.00
2nd speed rpm : 600
Rack travel in m: 12.90...13.10
3rd speed rpm : 900
Rack travel in m: 13.40...13.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 119.0...122.0
1000 s: (116.0...125.0)
Spread cm3 : 8.00
1000 s: (11.0)
Speed rpm : 900
Del.quantity cm3/ : 130.0...134.0
1000 s: (127.0...137.0)
Spread cm3 : 8.00
1000 s: (11.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.90
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 d 5
 Edition : 14.04.89
 Replaces : 11.11.88
 Test oil : ISO-4113

Combination no. : 0 401 848 793

Injection pump
 Pump designation : PE8P110A320LS3842
 EP type number : 0 411 818 714
 Governor
 Governor design. : RGV300..1050PA524-12
 Governor no. : 0 421 813 679

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 192.0
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
 : (3.95...4.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 8- 7- 2- 6- 3- 5-
 4- 1

Phasing : 0-45-90-135-180-225-
 270-315
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 11.7...11.9
 100 s: (11.4...12.1)

Spread cm3 : 0.4
 100 s: (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 8.4...8.7
 Del.quantity cm3/ : 1.5...2.1
 100 s: (1.2...2.3)

Spread cm3 : 0.4
 100 s: (0.7)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.20...1.50
 2nd speed rpm : 800
 travel mm : 5.60...6.00
 3rd speed rpm : 1110
 travel mm : 7.80...8.40
 4th speed rpm : 1150
 travel mm : 8.80...9.40

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 1100
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1050
 Del.quantity : 117.0...119.0
 1000 : (114.5...121.5)

Spread cm³ : 4.00
 1000 : (8.00)

Remarks:

RATED SPEED

1st version
Control lever
position degrees: 48...56

Testing:

1st rack travel in: 10.50
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1135...1165
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 200
Minimum rack travel: 10.50
Speed rpm : 300
Rack travel in mm : 8.40...8.70

CONSTANT REGULATION

Speed rpm : 300...450

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 98.0...104.0
 1000 s: (95.0...107.0)
Spread cm³ : 6.00
 1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
 1000 s: (136.0...164.0)

Note remarks

Combination no. : 0 401 848 795

Customer-spec. information
Customer : DAIMLER-BENZ

1st version kW : 213.0
Rated speed : 2100

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

Test pressure, bar: 25...27

Phasing : 0-45-90-135-180-225-
270-315

Tolerance \pm ^{0.005} : 0.50 (0.75)

Time to cyl. no. : 8

1st speed rpm : 750

Rack travel in mm : 12.70...12.80

Del.quantity cm³/ : 12.6...12.8

100 s: (12.3...13.0)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.4...8.8

Del.quantity cm3/ : 1.5...2.1
100 s: (1.2...2.3)

Spread cm³ : 0.4
 100 s: (0.7)

(B) Setting of injection pump
with governor

1st speed	rpm	: 300
travel mm		: 1.10...1.40
2nd speed	rpm	: 800
travel mm		: 5.80...6.20
3rd speed	rpm	: 1100
travel mm		: 8.20...8.60
4th speed	rpm	: 1150
travel mm		: 9.10...9.70

Control-lever position

```

Speed      rpm      : 1085
Rack travel in mm : 15.20...17.80

```

FULL LOAD DELIV. AT FULL LOAD STOP

```
1st version
Speed      rpm : 750
Del.quantity : 126.0...128.0
            1000 : (123.5...130.5)
```

Spread cm³ : 4.00
 1000 : (7.50)

Remarks:

RATED SPEED

1st version
Control lever
position degrees: 53...61

Testing:

1st rack travel in: 11.70
Speed rpm : 1090...1100
2nd rack travel in: 4.00
Speed rpm : 1150...1180
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 18...26

Testing:

Speed rpm : 200
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION

Speed rpm : 300...400

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050
Del.quantity cm³/ : 136.0...140.0
 1000 s: (133.0...143.0)
Spread cm³ : 7.00
 1000 s: (10.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
 1000 s: (136.0...164.0)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAO 14,5 b
Edition : 21.04.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 848 803

Injection pump
Pump designation : PE8P120A520/4LS3850
EP type number : 0 411 828 723
Governor
Governor design. : RQV250...900PA668-8
Governor no. : 0 421 813 742

Customer-spec. information
Customer : DAEWOO

Engine : D 2848 TI

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness : 6.00X1.50X1000
x Length mm

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
: (3.95...4.15)

Rack travel in mm : 9.00...12.00

H17

Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 19.9...20.1

100 s: (19.6...20.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.30...1.70

2nd speed rpm : 650
travel mm : 5.80...6.20

3rd speed rpm : 900
travel mm : 7.80...8.00

4th speed rpm : 1200
travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 940

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 199.0...201.0

1000 : (196.0...204.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

Navy

1st version
Control lever
position degrees: 64...72

Testing:

1st rack travel in: 10.00
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 1030...1060
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 8...16

Testing:

Speed rpm : 100
Minimum rack travel: 7.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 415...475

START CUT-OUT

Speed 1/min : 220 (240)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 185.0...205.0
1000 s: (181.0...209.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.90...6.10
Del.quantity cm³/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

H18

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 17,4 b
 Edition : 29.03.89
 Replaces : 11.85
 Test oil : ISO-4113
 Combination no. : 0 401 849 160
 Injection pump
 Pump designation : PE10P100A320LS842
 EP type number : 0 411 809 134
 Governor
 Governor design. : RQ300/1150PA187-2R
 Governor no. : 0 421 801 112

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 403

1st version kW : 259.0
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.35...3.55)
 Rack travel in mm : 9.00...12.00

Firing order : 10- 9- 4- 1- 8- 7
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
 216-261-288-333
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1150
 Rack travel in mm : 12.00...12.10
 Del.quantity cm3/ : 11.5...11.7
 100 s: (11.3...11.9)
 Spread cm3 : 0.3
 100 s: (0.5)

2nd speed rpm : 300.0
 Rack travel in mm : 7.4...7.6
 Del.quantity cm3/ : 1.3...1.9
 100 s: (1.0...2.1)
 Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1
 Speed rpm : 650
 Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1150
 Del.quantity : 115.5...117.5
 1000 : (113.5...119.5)
 Spread cm3 : 3.00
 1000 : (5.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 650
 Rack travel in mm : 14.2

Testing:

1st rack travel in: 11.00
 Speed rpm : 1195...1210
 2nd rack travel in: 4.00
 Speed rpm : 1235...1265

4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.5

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 7.40...7.60
Rack travel in mm : 2.00
Speed rpm : 410...450

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 12.00...12.10
2nd speed rpm : 600
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 100.5...105.5
1000 s: (98.5...107.5)
Spread cm3 : 5.00
1000 s: (7.00)

RACK STOP ADJUSTMENT

Speed rpm : 650

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00
Speed rpm : 1195...1210

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 125.0...145.0
1000 s: (121.0...149.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 18,2 c
Edition : 07.02.89
Replaces : 22.1.88
Test oil : ISO-4113

Combination no. : 0 401 849 734

Injection pump
Pump designation : PE10P120A520/4LS3843
EP type number : 0 411 829 707
Governor
Governor design. : RQ300/1000PA837
Governor no. : 0 421 801 372

Customer-spec. information
Customer : MAN

Engine : D2840LF/460

1st version kW : 338.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.90...4.00
: (3.85...4.05)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
: - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 20.4...20.6
100 s: (20.1...20.9)

Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.0...6.2
Del.quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2
Speed rpm : 600
Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000
Del.quantity : 204.0...206.0
1000 : (201.0...209.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.30
Speed rpm : 1045...1060
2nd rack travel in: 4.00
Speed rpm : 1125...1155
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 365...405

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.80...11.90
2nd speed rpm : 600
Rack travel in m: 11.80...12.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 380
Rack travel in m: 10.40...10.50
3rd pressure hPa : 500
Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1045...1060

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7778

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 18,2 c1
Edition : 07.02.89
Replaces : 22.1.88
Test oil : ISO-4113

Combination no. : 0 401 849 735

Injection pump
Pump designation : PE10P120A520/4LS3843
EP type number : 0 411 829 707
Governor
Governor design. : RQV300...1000PA838
Governor no. : 0 421 813 585

Customer-spec. information
Customer : MAN

Engine : D2840LF/460

1st version kW : 338.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.90...4.00
: (3.85...4.05)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
- 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 20.4...20.6

100 s: (20.1...20.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 6.0...6.2
Del.quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.00...1.40
2nd speed rpm : 500
travel mm : 3.10...3.50
3rd speed rpm : 850
travel mm : 6.60...6.90
4th speed rpm : 1000
travel mm : 7.70...7.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1150
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000

Del.quantity : 204.0...206.0
1000 : (201.0...209.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 49...57

Testing:
1st rack travel in: 10.30
Speed rpm : 1040...1050
2nd rack travel in: 4.00
Speed rpm : 1115...1145
4th rack travel in: 1250
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 13...21

Testing:
Speed rpm : 100
Minimum rack travel: 7.60
Speed rpm : 300
Rack travel in mm : 6.00...6.20

CONSTANT REGULATION
Speed rpm : 335...445

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 10.10...10.20
2nd pressure hPa : 380
Rack travel in m: 10.40...10.50
3rd pressure hPa : 500
Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version

H24

Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 144.0...146.0
1000 s: (141.0...149.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.30
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:
: MAN-NR. 2-7779

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 17,4 c1
Edition : 28.04.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 849 744

Injection pump
Pump designation : PE10P120A520/4LS3833
EP type number : 0 411 829 706
Governor
Governor design. : RQ750PA663-7
Governor no. : 0 421 801 331

Customer-spec. information
Customer : MAN

Engine : D2840 LE

1st version kW : 352.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30
: (4.15...4.35)
Rack travel in mm : 9.00...12.00
Firing order : 10- 9- 4- 1- 8- 7
: - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-
216-261-288-333
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.1...6.3

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Testing:

1st rack travel in: 11.30

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 790...803

4th rack travel in: 950

Speed rpm : 0.00...1.00

STARTING FUEL DELIVERY

Speed rpm : 100

Remarks:

: MAN-NR. 2-7975

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MWM 21,6 a4
Edition : 24.02.89
Replaces : 6.4.88
Test oil : ISO-4113

Combination no. : 0 401 870 091

Injection pump
Pump designation : PE12P120A520/5RS428-
1

EP type number : 0 411 820 034

Governor

Governor design. : RSUV300...900POA320-
1

Governer no. : 0 421 829 107

Customer-spec. information

Customer : MWM

Engine : TBD 234 V12

1st version kW : 600.0

Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

H27

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 2- 9- 10- 5- 6-
11- 12- 3- 4- 7- 8

Phasing : 0-30-60-90-120-150-
180-210-240-270-300-
330

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 13.70...13.80

Del.quantity cm3/ : 24.9...25.1

100 s: (24.6...25.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 2.0...2.6

100 s: (1.7...2.9)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 249.0...251.0

1000 : (246.0...254.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 65...73

Testing:

1st rack travel in: 12.70
Speed rpm : 940...950
2nd rack travel in: 4.00
Speed rpm : 965...995
4th rack travel in: 1130
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 14...22
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3
Speed rpm : 300
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 320...380

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.70...13.80
2nd speed rpm : 450
Rack travel in m: 13.70...13.80
3rd speed rpm : 280
Rack travel in m: 14.90...15.50

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 12.70
Speed rpm : 940...950

STARTING FUEL DELIVERY

Speed rpm : 100

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 20.0...26.0
1000 s: (17.0...29.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 o11
 Edition : 21.04.89
 Replaces : 12.9.86
 Test oil : ISO-4113

Combination no. : 0 401 876 316

Injection pump
 Pump designation : PE6P100A72ORS447
 EP type number : 0 411 806 191
 Governor
 Governor design. : RSV250...1200P5A509-
 1
 Governor no. : 0 421 833 199

Customer-spec. information
 Customer : DAF

Engine : DHT 825

1st version kW : 162.0
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)

J01

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 11.8...12.0
 100 s: (11.6...12.2)

Spread cm3 : 0.3
 100 s: (0.6)

2nd speed rpm : 250.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm3/ : 0.8...1.2
 100 s: (0.5...1.4)

Spread cm3 : 0.3
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension
 Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1000
 Aneroid pressure h: 700
 Del.quantity : 118.5...120.5
 1000 : (116.5...122.5)

Spread cm3 : 3.50
 1000 : (6.00)

RATED SPEED

1st version
 Control lever
 position degrees: 58...66

Testing:
 1st rack travel in: 10.40
 Speed rpm : 1240...1250
 2nd rack travel in: 4.00
 Speed rpm : 1300...1330

3rd rack travel in: 4.00
Speed rpm : 1325...1355
4th rack travel in: 1530
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 22...30
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.8
Speed rpm : 250
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 540...640

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.60...11.70
2nd speed rpm : 400
Rack travel in m: 11.60...11.80
3rd speed rpm : 300
Rack travel in m: 11.90...12.40

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 600
Pressure hPa : 700
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 600

1st pressure hPa : -
Rack travel in m: 10.40...10.60
2nd pressure hPa : 315
Rack travel in m: 11.10...11.20
3rd pressure hPa : 225
Rack travel in m: 10.50...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 600
Del.quantity cm3/ : 92.5...96.5
1000 s: (90.0...99.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1240...1250

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 210.0...230.0
1000 s: (206.0...234.0)
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.20...5.40
Del.quantity cm3/ : 8.0...12.0
1000 s: (5.5...14.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 c
Edition : 24.02.89
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 401 876 321

Injection pump
Pump designation : PE6P110A320RS497
EP type number : 0 411 816 165
Governor
Governor design. : RSV200...1200P1A374-
1
Governor no. : 0 421 833 204

Customer-spec. information
Customer : VOLVO

Engine : TD71A

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del.quantity cm³/ : 11.6...11.8
100 s: (11.3...12.1)

Spread cm³ : 0.4
100 s: (0.7)

2nd speed rpm : 200.0
Rack travel in mm : 5.4...5.6
Del.quantity cm³/ : 1.6...2.2
100 s: (-)
Spread cm³ : 0.3
100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 900
Del.quantity : 116.0...118.0
1000 : (113.0...121.0)
Spread cm³ : 4.00
1000 : (7.50)

RATED SPEED

1st version
Control lever
position degrees: 51...59

Testing:
1st rack travel in: 10.80
Speed rpm : 1210...1220
2nd rack travel in: 4.00
Speed rpm : 1240...1270
4th rack travel in: 1410

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 13...21

Setting point w/out bumper spring

Speed rpm : 200

Rack travel in mm : 5.0

Speed rpm : 200

Rack travel in mm : 5.40...5.60

Rack travel in mm : 2.00

Speed rpm : 280...340

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 900

Rack travel mm : 11.80...11.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.80...10.00

2nd pressure hPa : 675

Rack travel in m: 11.60...11.70

3rd pressure hPa : 200

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 700

Del.quantity cm3/ : 82.0...85.0

1000 s: (79.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 1210...1220

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 160.0...190.0

1000 s: (160.0...190.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

J04

Speed rpm : 200

Rack travel in mm : 5.40...5.60

Del.quantity cm3/ : 16.0...22.0

Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 6,1 q
Edition : 10.02.89
Replaces : 9.12.88
Test oil : ISO-4113

Combination no. : 0 401 876 327

Injection pump
Pump designation : PE6P110A32ORS499
EP type number : 0 411 816 169
Governor
Governor design. : RSV325...1400P2A374-
3
Governor no. : 0 421 833 220

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TAM61A

1st version kW : 220.0
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm³/ : 12.0...12.2

100 s: (11.7...12.5)

Spread cm³ : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 4.1...4.3

Del.quantity cm³/ : 1.1...1.5

100 s: (0.9...1.7)

Spread cm³ : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 900

Del.quantity : 120.5...122.5

1000 : (117.5...125.5)

Spread cm³ : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.10

Speed rpm : 1450...1460

2nd rack travel in: 4.00
Speed rpm : 1530...1560
4th rack travel in: 1630
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 13...21
Setting point w/out bumper spring
Speed rpm : 325
Rack travel in mm : 3.7
Speed rpm : 325
Rack travel in mm : 4.10...4.30
Rack travel in mm : 2.00
Speed rpm : 380...440

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 900
Rack travel mm : 11.00...11.20

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 360
Rack travel in m: 8.70...8.80
3rd pressure hPa : 730
Rack travel in m: 10.70...10..80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900
Speed rpm : 1400
Del.quantity cm3/ : 122.5...126.5
1000 s: (119.5...129.5)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 54.5...58.5
1000 s: (51.5...61.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10
Speed rpm : 1450...1460

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...165.0
1000 s: (-)

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 11.0...15.0
1000 s: (9.0...17.0)
Spread cm3 : 3.00
1000 s: (6.00)

Remarks:

APPLICATION

Navy

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f
Edition : 24.02.89
Replaces : 25.3.88
Test oil : ISO-4113

Combination no. : 0 401 876 332

Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AX,

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 11.3...11.5

100 s: (11.1...11.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 113.0...115.0

1000 : (111.0...117.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

1st rack travel in: 10.90

Speed rpm : 790...800

2nd rack travel in: 4.00

Speed rpm : 825...855

3rd rack travel in: 4.00

Speed rpm : 835...865

4th rack travel in: 1000

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 19...27

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.5

Testing:

Speed rpm : 100

Minimum rack trave: 19.50

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Rack travel in mm : 2.00

Speed rpm : 330...390

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 11.90...12.00

2nd speed rpm : 450

Rack travel in m: 11.90...12.00

3rd speed rpm : 290

Rack travel in m: 13.20...13.80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

Speed rpm : 790...800

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 260.0...280.0

1000 s: (256.0...284.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 5.90...6.10

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f1
 Edition : 24.02.89
 Replaces : 7.10.88
 Test oil : ISO-4113

Combination no. : 0 401 876 332A

Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 95 A1 COMR 400

1st version kW : 125.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 11.0...11.2

100 s: (10.8...11.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 110.0...112.0

1000 : (108.0...114.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.40

Speed rpm : 1060...1065

2nd rack travel in: 4.00

Speed rpm : 1090...1120

3rd rack travel in: 4.00
Speed rpm : 1100...1130
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 11.40...11.50
2nd speed rpm : 450
Rack travel in m: 11.40...11.50
3rd speed rpm : 250
Rack travel in m: 12.60...13.20

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 1060...1065

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f2
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 332B
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 95 A1 COML 4

1st version kW : 114.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 10.0...10.2

100 s: (9.8...10.4)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.00

Speed rpm : 1010...1015

2nd rack travel in: 4.00

Speed rpm : 1040...1070

3rd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.00...11.10
2nd speed rpm : 450
Rack travel in m: 11.00...11.10
3rd speed rpm : 250
Rack travel in m: 12.20...12.80

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1010...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f3
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 332C
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 95 AI COEB 2

1st version kW : 113.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.60

Speed rpm : 905...910

2nd rack travel in: 4.00

Speed rpm : 935...965

3rd rack travel in: 4.00
Speed rpm : 945...975
4th rack travel in: 1100
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...400

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.60...11.70
2nd speed rpm : 450
Rack travel in m: 11.60...11.70
3rd speed rpm : 290
Rack travel in m: 12.80...13.40

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f4
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 332D
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 95 A1 COEB 1

1st version kW : 97.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.60...11.70

Del.quantity cm³/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 107.0...109.0

1000 : (105.0...111.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.60

Speed rpm : 755...760

2nd rack travel in: 4.00

Speed rpm : 780...810

3rd rack travel in: 4.00
Speed rpm : 790...820
4th rack travel in: 1000
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 330...390

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.60...11.70
2nd speed rpm : 450
Rack travel in m: 11.60...11.70
3rd speed rpm : 300
Rack travel in m: 12.80...13.40

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.60
Speed rpm : 755...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f5
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 332E
Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AOML 4

1st version kW : 158.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 14.10...14.20

Del.quantity cm3/ : 16.2...16.4

100 s: (16.0...16.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 162.0...164.0

1000 : (160.0...166.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 13.10

Speed rpm : 960...965

2nd rack travel in: 4.00

Speed rpm : 1000...1030

3rd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 320...380

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 14.10...14.20
2nd speed rpm : 450
Rack travel in m: 14.10...14.20
3rd speed rpm : 250
Rack travel in m: 15.30...15.90

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.10
Speed rpm : 960...965

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f6
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 332F
Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer spec. information
Customer : ENASA

Engine : 95 T1 ADEA 2

1st version kW : 147.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 14.20...14.30

Del.quantity cm³/ : 16.3...16.5

100 s: (16.1...16.7)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 163.0...165.0

1000 : (161.0...167.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 45...53

Testing:

1st rack travel in: 13.20

Speed rpm : 905...910

2nd rack travel in: 4.00

Speed rpm : 935...965

3rd rack travel in: 4.00
Speed rpm : 945...975
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...400

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 14.20...14.30
2nd speed rpm : 450
Rack travel in m: 14.20...14.30
3rd speed rpm : 290
Rack travel in m: 15.40...16.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del. quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f7
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 332G
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 95 T1 AOEB 1

1st version kW : 146.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 14.40...14.50

Del.quantity cm3/ : 16.7...16.9

100 s: (16.5...17.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 167.0...169.0

1000 : (165.0...171.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 13.40

Speed rpm : 755...760

2nd rack travel in: 4.00

Speed rpm : 780...810

3rd rack travel in: 4.00
Speed rpm : 790...820
4th rack travel in: 1000
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 330...390

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 14.40...14.50
2nd speed rpm : 450
Rack travel in m: 14.40...14.50
3rd speed rpm : 300
Rack travel in m: 15.60...16.20

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.40
Speed rpm : 755...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f8
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 332H
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer spec. information
 Customer : ENASA

Engine : 95 A1 COIB 4

1st version kW : 120.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 11.5...11.7

100 s: (11.3...11.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 115.0...117.0

1000 : (113.0...119.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 10.80

Speed rpm : 1010...1015

2nd rack travel in: 4.00

Speed rpm : 1040...1070

3rd rack travel in: 4.00
Speed rpm : 1050...1080
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.80...11.90
2nd speed rpm : 450
Rack travel in m: 11.80...11.90
3rd speed rpm : 250
Rack travel in m: 13.00...13.60

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1010...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1 f9
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 332K
Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 95 T1 AOIB 4

1st version kW : 165.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 16.3...16.5

100 s: (16.1...16.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 163.0...165.0

1000 : (161.0...167.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 13.20

Speed rpm : 960...965

2nd rack travel in: 4.00

Speed rpm : 1000...1030

3rd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 320...380

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 950
Rack travel in m: 14.20...14.30
2nd speed rpm : 450
Rack travel in m: 14.20...14.30
3rd speed rpm : 250
Rack travel in m: 15.40...16.00

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 13.20
Speed rpm : 960...965

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1f10
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 332L
 Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 95 T1 A0IR 43

1st version kW : 166.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.10...14.20

Del.quantity cm3/ : 16.3...16.5

100 s : (16.1...16.7)

Spread cm3 : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s : (1.5...2.4)

Spread cm3 : 0.3

100 s : (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 163.0...165.0

1000 : (161.0...167.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 49...57

Testing:

1st rack travel in: 13.10

Speed rpm : 1010...1015

2nd rack travel in: 4.00

Speed rpm : 1045...1075

3rd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 310...370

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 14.10...14.20
2nd speed rpm : 450
Rack travel in m: 14.10...14.20
3rd speed rpm : 250
Rack travel in m: 15.30...15.90

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 13.10
Speed rpm : 1010...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1f11
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 401 876 332M

Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 9105.42.25.43

1st version kW : 132.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.70...11.80

Del.quantity cm³/ : 11.1...11.3

100 s: (10.9...11.5)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 111.0...113.0

1000 : (109.0...115.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 10.70

Speed rpm : 965...975

2nd rack travel in: 4.00

Speed rpm : 1000...1030

3rd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1200
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 15...23
Setting point w/out bumper spring
Speed rpm : 200
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 200
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 320...380

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.70...11.80
2nd speed rpm : 450
Rack travel in m: 11.70...11.80
3rd speed rpm : 250
Rack travel in m: 12.90...13.50

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 965...975

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 200
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1f12
Edition : 24.02.89
Replaces : —
Test oil : ISO-4113
Combination no. : 0 401 876 332N
Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer spec. information
Customer : ENASA

Engine : 9100.14.25.32

1st version kW : 125.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values —

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

K03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 11.60...11.70
Del. quantity cm³/ : 11.0...11.2
100 s: (10.8...11.4)
Spread cm³ : 0.3
100 s: (0.6)

2nd speed rpm : 250.0
Rack travel in mm : 7.9...8.1
Del. quantity cm³/ : 1.8...2.2
100 s: (1.5...2.4)
Spread cm³ : 0.3
100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3
Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Del. quantity : 110.0...112.0
1000 : (108.0...114.0)
Spread cm³ : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 49...57

Testing:
1st rack travel in: 10.60
Speed rpm : 1010...1020
2nd rack travel in: 4.00
Speed rpm : 1045...1055

3rd rack travel in: 4.00
Speed rpm : 1055...1085
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...400

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.60...11.70
2nd speed rpm : 450
Rack travel in m: 11.60...11.70
3rd speed rpm : 250
Rack travel in m: 12.80...13.40

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.60
Speed rpm : 1010...1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1f13
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 332R
Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 9100.04

1st version kW : 107.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

K05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.40...11.50

Del.quantity cm³/ : 10.4...10.6

100 s: (10.2...10.8)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 104.0...106.0

1000 : (102.0...108.0)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 10.40

Speed rpm : 915...925

2nd rack travel in: 4.00

Speed rpm : 950...960

3rd rack travel in: 4.00
Speed rpm : 960...990
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 340...400

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 11.40...11.50
2nd speed rpm : 450
Rack travel in m: 11.40...11.50
3rd speed rpm : 250
Rack travel in m: 12.60...13.20

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1f14
 Edition : 24.02.89
 Replaces : -
 Test oil : ISO-4113

Combination no. : 0 401 876 332S

Injection pump
 Pump designation : PE6P100A820LS130
 EP type number : 0 411 806 179
 Governor
 Governor design. : RSV250...1000P1A532
 Governor no. : 0 421 833 273

Customer-spec. information
 Customer : ENASA

Engine : 9105.05

1st version kW : 86.0
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00

K07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 11.6...11.8

100 s: (11.4...12.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm3/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 116.0...118.0

1000 : (114.0...120.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

Testing:

1st rack travel in: 11.10

Speed rpm : 760...770

2nd rack travel in: 4.00

Speed rpm : 775...805

3rd rack travel in: 4.00
Speed rpm : 785...815
4th rack travel in: 1000
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.90...6.10
Rack travel in mm : 2.00
Speed rpm : 330...390

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 12.10...12.20
2nd speed rpm : 450
Rack travel in m: 12.10...12.20
3rd speed rpm : 290
Rack travel in m: 13.30...13.90

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.10
Speed rpm : 760...770

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 10,1f15
Edition : 24.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 332T
Injection pump
Pump designation : PE6P100A820LS130
EP type number : 0 411 806 179
Governor
Governor design. : RSV250...1000P1A532
Governor no. : 0 421 833 273

Customer-spec. information
Customer : ENASA

Engine : 9109.04

1st version kW : 140.0
Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

K09

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 13.20...13.30

Del.quantity cm³/ : 14.2...14.4

100 s: (14.0...14.6)

Spread cm³ : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.9...8.1

Del.quantity cm³/ : 1.8...2.2

100 s: (1.5...2.4)

Spread cm³ : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 142.5...144.5

1000 : (140.5...146.5)

Spread cm³ : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 12.00

Speed rpm : 915...925

2nd rack travel in: 4.00

Speed rpm : 945...975

3rd rack travel in: 4.00
Speed rpm : 955...985
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 19...27
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.5

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 9.40...6.10
Rack travel in mm : 2.00
Speed rpm : 340...400

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 13.20...13.30
2nd speed rpm : 450
Rack travel in m: 13.20...13.30
3rd speed rpm : 250
Rack travel in m: 14.40...15.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 12.00
Speed rpm : 915...925

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 260.0...280.0
1000 s: (256.0...284.0)
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.90...6.10

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g1
 Edition : 17.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 333A
 Injection pump
 Pump designation : PE6P120A320RS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Customer-spec. information
 Customer : ENASA

Engine : 96 T1A0

1st version kW : 240.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.80

Speed rpm : 1115...1120
2nd rack travel in: 4.00
Speed rpm : 1160...1190
3rd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.80...11.90
2nd speed rpm : 450
Rack travel in m: 11.80...11.90
3rd speed rpm : 250
Rack travel in m: 13.00...13.60

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.80
Speed rpm : 1115...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g2
 Edition : 17.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 333B
 Injection pump
 Pump designation : PE6P120A320RS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Customer-spec. information
 Customer : ENASA

Engine : 96 T1A0

1st version kW : 228.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.60...11.70

Del.quantity cm3/ : 22.3...22.5

100 s: (22.0...22.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 223.0...225.0

1000 : (220.0...228.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 41...49

Testing:

1st rack travel in: 10.60

Speed rpm : 1110...1115
2nd rack travel in: 4.00
Speed rpm : 1150...1180
3rd rack travel in: 4.00
Speed rpm : 1160...1190
4th rack travel in: 1350
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Dimension a mm : 2.30
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.60...11.70
2nd speed rpm : 450
Rack travel in m: 11.60...11.70
3rd speed rpm : 250
Rack travel in m: 12.80...13.40

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.60
Speed rpm : 1110...1115

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g3
 Edition : 17.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 333C
 Injection pump
 Pump designation : PE6P120A320RS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Customer-spec. information
 Customer : ENASA

Engine : 96 T1A0

1st version kW : 209.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 23.7...23.9

100 s: (23.4...24.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Del.quantity : 237.0...239.0

1000 : (234.0...242.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 11.20

Speed rpm : 905...910
2nd rack travel in: 4.00
Speed rpm : 960...990
3rd rack travel in: 4.00
Speed rpm : 970...1000
4th rack travel in: 1150
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Dimension a mm : 2.30
Torque control curve - 1st version
1st speed rpm : 900
Rack travel in m: 12.20...12.30
2nd speed rpm : 450
Rack travel in m: 12.20...12.30
3rd speed rpm : 290
Rack travel in m: 13.40...14.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.20
Speed rpm : 905...910

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g4
 Edition : 17.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 3330
 Injection pump
 Pump designation : PE6P120A320RS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Customer-spec. information
 Customer : ENASA

Engine : 96 T1A0

1st version kW : 195.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del.quantity cm3/ : 23.7...23.9

100 s: (23.4...24.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 237.0...239.0

1000 : (234.0...242.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 32...40

Testing:

1st rack travel in: 11.50

Speed rpm : 755...760
2nd rack travel in: 4.00
Speed rpm : 820...850
3rd rack travel in: 4.00
Speed rpm : 830...860
4th rack travel in: 1000
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 12.50...12.60
2nd speed rpm : 450
Rack travel in m: 12.50...12.60
3rd speed rpm : 300
Rack travel in m: 13.70...14.30

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 11.50
Speed rpm : 755...760

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g5
 Edition : 17.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 333E
 Injection pump
 Pump designation : PE6P120A32ORS257
 EP type number : 0 411 826 075
 Governor
 Governor design. : RSV250...1100POA533
 Governor no. : 0 421 833 274

Customer-spec. information
 Customer : ENASA

Engine : 96 T1AD

1st version kW : 220.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 22.3...22.5

100 s: (22.0...22.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 223.0...225.0

1000 : (220.0...228.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 10.70

Speed rpm : 1010...1015
2nd rack travel in: 4.00
Speed rpm : 1050...1080
3rd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.70...11.80
2nd speed rpm : 450
Rack travel in m: 11.70...11.80
3rd speed rpm : 250
Rack travel in m: 12.90...13.50

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.70
Speed rpm : 1010...1015

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 g6
Edition : 17.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 333F
Injection pump
Pump designation : PE6P120A320RS257
EP type number : 0 411 826 075
Governor
Governor design. : RSV250...1100POA533
Governor no. : 0 421 833 274

Customer-spec. information
Customer : ENASA

Engine : 96 T1AD

1st version kW : 221.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 21.2...21.4

100 s: (20.9...21.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.7...5.9

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 212.0...214.0

1000 : (209.0...217.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 10.20

Speed rpm : 1010...1020
2nd rack travel in: 4.00
Speed rpm : 1050...1060
3rd rack travel in: 4.00
Speed rpm : 1060...1090
4th rack travel in: 1250
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 17...25
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack trave: 19.50
Speed rpm : 250
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 350...410

TORQUE CONTROL

Torque control curve - 1st version
1st speed rpm : 1000
Rack travel in m: 11.20...11.30
2nd speed rpm : 450
Rack travel in m: 11.20...11.30
3rd speed rpm : 250
Rack travel in m: 12.40...13.00

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.20
Speed rpm : 1010...1020

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)
Rack travel in mm : 19.50...21.00

Remarks:

:

APPLICATION

Special-purpose vehicle

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,2 b
Edition : 31.03.89
Replaces : 9.12.88
Test oil : ISO-4113

Combination no. : 0 401 876 761

Injection pump
Pump designation : PE6P120A320RS3206
EP type number : 0 411 826 773
Governor
Governor design. : RSV250...900P4A374-6
Governor no. : 0 421 833 283

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TAMD122 A

1st version kW : 280.0
Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 27.5...27.7

100 s: (27.2...28.0)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.0...5.2
Del.quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.5
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 900

Del.quantity : 275.5...277.5

1000 : (272.5...280.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.70

Speed rpm : 925...935

2nd rack travel in: 4.00

Speed rpm : 985...1015
3rd rack travel in: 4.00
Speed rpm : 995...1025
4th rack travel in: 1130
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.6
Speed rpm : 250
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 380...440

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 900
Rack travel mm : 11.70...11.80

Measurement

Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 240
Rack travel in m: 8.90...9.00
3rd pressure hPa : 770
Rack travel in m: 11.30...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm3/ : 177.0...179.0
1000 s: (174.0...182.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 925...935

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 260.0...280.0
1000 s: (250.0...290.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 5.00
1000 s: (7.00)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 12,2 b1
 Edition : 11.11.88
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 401 876 761A
 Injection pump
 Pump designation : PE6P120A320RS3206
 EP type number : 0 411 826 773
 Governor
 Governor design. : RSV250...900P4A374-6
 Governor no. : 0 421 833 283

Customer-spec. information
 Customer : VOLVO-PENTA

Engine : TAMD122 A

1st version kW : 280.0
 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 29.0...29.2

100 s: (28.7...29.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.5

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 290.5...292.5

1000 : (287.5...295.5)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever

position degrees: 54...62

Testing:

1st rack travel in: 11.10

Speed rpm : 1020...1030

2nd rack travel in: 4.00

Speed rpm : 1080...1110
3rd rack travel in: 4.00
Speed rpm : 1090...1120
4th rack travel in: 1160
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever
position degrees: 18...26
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 4.6
Speed rpm : 250
Rack travel in mm : 4.50...4.70
Rack travel in mm : 2.00
Speed rpm : 380...440

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 700
Pressure hPa : 1200
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 700

1st pressure hPa : -
Rack travel in m: 8.60...8.80
2nd pressure hPa : 360
Rack travel in m: 8.90...9.00
3rd pressure hPa : 1030
Rack travel in m: 11.70...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -
Speed rpm : 700
Del.quantity cm³/ : 177.0...179.0
1000 s: (174.0...182.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 1020...1030

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 290.0...310.0
1000 s: (280.0...320.0)

Remarks:

Delivery-valve spring pre-tension =
2.40...2.60 mm.
Permissible alteration from 2.20...2.90
mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,1 c 2
Edition : 07.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 768
Injection pump
Pump designation : PE6P110A320RS3147
EP type number : 0 411 816 743
Governor
Governor design. : RSV650...750P4A421-6
Governor no. : 0 421 833 309

Customer-spec. information
Customer : VOLVO-PENTA

Engine : TID 71AG

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.50...11.60

Del.quantity cm3/ : 16.4...16.6

100 s: (16.1...16.9)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 650.0

Rack travel in mm : 4.0...4.2

Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm3 : 0.3

100 s: (0.6)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 164.0...166.0

1000 : (161.0...169.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 10.50

Speed rpm : 747...752

2nd rack travel in: 4.00

Speed rpm : 777...790

4th rack travel in: 930

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 31...39

Setting point w/out bumper spring

Speed rpm : 650

Rack travel in mm : 4.1

Speed rpm : 650

Rack travel in mm : 4.00...4.20

Rack travel in mm : 2.00

Speed rpm : 630...690

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

Speed rpm : 747...752

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150.0...180.0

1000 s: (146.0...184.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650

Rack travel in mm : 4.00...4.20

Del.quantity cm3/ : 17.0...21.0

1000 s: (14.5...23.5)

Spread cm3 : 3.00

1000 s: (6.00)

Remarks:

:

Delivery-valve spring pre-tension =

2.40...2.60 mm.

Permissible alteration from 2.20...2.90

mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 h
Edition : 07.02.89
Replaces : 26.6.87
Test oil : ISO-4113

Combination no. : 0 401 878 710

Injection pump
Pump designation : PE8P110A320LS3845
EP type number : 0 411 818 715
Governor
Governor design. : RSV350...750POA824-1
2

Governer no. : 0 421 833 270

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM442

1st version kW : 163.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

L01

Prestroke mm : 4.00...4.10
: (3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 8- 7- 2- 6- 3- 5-
4- 1

Phasing : 0-45-90-135-180-225-
Phasing : 270-315
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.90...14.00

Del.quantity cm3/ : 14.8...15.0

100 s: (14.5...15.2)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 350.0
Rack travel in mm : 7.9...8.2
Del.quantity cm3/ : 1.4...1.8
100 s: (1.1...2.0)
Spread cm3 : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -3

Speed rpm : 800
Rack travel in mm : 0.30...0.70

Governor spring pre-tension
Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 148.0...150.0
1000 : (145.5...152.5)
Spread cm3 : 4.00
1000 : (8.00)

RATED SPEED

1st version
Control lever
position degrees: 22...30

Testing:

1st rack travel in: 12.90

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...793

4th rack travel in: 1000

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rpm : 350

Rack travel in mm : 7.1

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 350

Rack travel in mm : 7.00...7.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 150.0...170.0

1000 s: (146.0...174.0)

Remarks:

:

Observe VDT-I-420/120

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 a
Edition : 07.04.89
Replaces : 5.8.88
Test oil : ISO-4113

Combination no. : 0 402 035 020

Injection pump
Pump designation : PES5P120A720/3LS512
EP type number : 0 412 025 021
Governor
Governor design. : RQ300/1100PA813-1
Governor no. : 0 421 801 405

Customer-spec. information
Customer : MAN

Engine : D2865LF

1st version kW : 191.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
: (3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.1)

Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 209.0...211.0
1000 : (206.0...214.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.10

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.0

Testing:

Speed rpm : 100
Minimum rack trave: 5.50
Speed rpm : 300
Rack travel in mm : 3.90...4.10
Rack travel in mm : 2.00
Speed rpm : 320...380

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.20...10.30
2nd speed rpm : 750
Rack travel in m: 11.00...11.20
3rd speed rpm : 920
Rack travel in m: 10.60...10.80

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.70...7.90
2nd pressure hPa : 125
Rack travel in m: 8.10...8.20
3rd pressure hPa : 430
Rack travel in m: 10.20...10.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100

Del.quantity cm3/ : 198.0...202.0
1000 s: (195.0...205.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 200.0...206.0
1000 s: (197.0...209.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 125.0...127.0
1000 s: (122.0...130.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.10
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 190.0...210.0
1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.90...4.10
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7881

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 10,0 b
Edition : 07.04.89
Replaces : 5.8.88
Test oil : ISO-4113

Combination no. : 0 402 035 021

Injection pump
Pump designation : PES5P120A720/3LS512
EP type number : 0 412 025 021
Governor
Governor design. : RQV300...1100PA876
Governor no. : 0 421 813 661

Customer-spec. information
Customer : MAN

Engine : D2865LF

1st version kW : 191.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60
(3.45...3.65)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 20.9...21.1

100 s: (20.6...21.4)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 3.9...4.1

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.70...2.00

2nd speed rpm : 850
travel mm : 6.00...6.20

3rd speed rpm : 1100
travel mm : 8.10...8.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 47...55

Testing:

1st rack travel in: 9.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 16...24

Testing:

Speed rpm : 100

Minimum rack travel: 5.50

Speed rpm : 300

Rack travel in mm : 3.90...4.10

CONSTANT REGULATION

Speed rpm : 310...410

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

1st speed rpm : 750

Rack travel in m: 10.70...10.80

2nd speed rpm : 1100

Rack travel in m: 10.20...10.30

3rd speed rpm : 900

Rack travel in m: 10.60...10.70

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 1000

Rack travel mm : 10.70...10.80

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 7.70...7.90

2nd pressure hPa : 125

Rack travel in m: 8.10...8.20

3rd pressure hPa : 430

Rack travel in m: 10.20...10.50

START CUT-OUT

L06

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 1100

Del.quantity cm3/ : 199.0...201.0

1000 s: (196.0...204.0)

Aneroid pressure h: 1000

Speed rpm : 650

Del.quantity cm3/ : 200.0...206.0

1000 s: (197.0...209.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 125.0...127.0

1000 s: (122.0...130.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 190.0...210.0

1000 s: (186.0...214.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 3.90...4.10

Del.quantity cm3/ : 12.0...18.0

1000 s: (9.0...21.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MAN-NR. 2-7882

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a13
Edition : 31.07.87
Replaces : 12.9.86
Test oil : ISO-4113

Combination no. : 0 402 036 044

Injection pump
Pump designation : PES6P120A720/3LS470-
2

EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA658-19
Governor no. : 0 421 801 323

Customer-spec. information
Customer : MAN

Engine : D2866LFZ/330

1st version kW : 243.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

L07

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 20.7...20.9

100 s: (20.4...21.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.6...4.8
Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 750
Aneroid pressure h: 1000
Del.quantity : 207.0...209.0
1000 : (204.0...212.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.7

Testing:

Speed rpm : 100
Minimum rack travel: 6.20
Speed rpm : 300
Rack travel in mm : 4.60...4.80
Rack travel in mm : 2.00
Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.70...11.80
2nd speed rpm : 750
Rack travel in m: 11.90...12.20
3rd speed rpm : 875
Rack travel in m: 11.80...12.00
4th speed rpm : 950
Rack travel in m: 11.20...11.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 280
Rack travel in m: 10.50...10.90

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

L08

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 203.0...207.0
1000 s: (200.0...210.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 208.0...214.0
1000 s: (205.0...217.0)
Aneroid pressure h: 280
Speed rpm : 500
Del.quantity cm3/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.60...4.80
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7712

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a22
Edition : 11.12.87
Replaces : 18.8.87
Test oil : ISO-4113

Combination no. : 0 402 036 061

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RGV300...1100PA700-2
Governor no. : 0 421 813 543

Customer-spec. information
Customer : MAN

Engine : D2866LF/290

1st version kW : 213.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.0

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.50...1.70

2nd speed rpm : 850

travel mm : 5.70...6.00

3rd speed rpm : 1100

travel mm : 8.00...8.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control lever
position degrees: 62...70

Testing:

1st rack travel in: 8.70
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1205...1235
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 7...15

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 300
Rack travel in mm : 4.80...5.00
Rack travel in mm : 2.00
Speed rpm : 375...435

TORQUE CONTROL

Dimension a mm : 0.65
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 10.30...10.40
2nd speed rpm : 1100
Rack travel in m: 9.70...9.80
3rd speed rpm : 850
Rack travel in m: 10.20...10.30
4th speed rpm : 925
Rack travel in m: 9.90...10.10

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.30...10.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.90...9.10
2nd pressure hPa : 85
Rack travel in m: 9.30...9.40
3rd pressure hPa : 160
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 173.0...177.0
1000 s: (170.0...180.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 174.0...180.0
1000 s: (171.0...183.0)
Aneroid pressure h: 160
Speed rpm : 500
Del.quantity cm3/ : 157.0...169.0
1000 s: (154.0...172.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than
full load rack tr: 8.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7761

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 g6
 Edition : 30.09.88
 Replaces : 11.12.87
 Test oil : ISO-4113

Combination no. : 0 402 036 064

Injection pump
 Pump designation : PES6P110A720/3LS477-
 2
 EP type number : 0 412 016 071
 Governor
 Governor design. : RQ250/1100PA817-1
 Governor no. : 0 421 801 362

Customer-spec. information
 Customer : MAN

Engine : D2566UH/205

1st version kW : 150.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 10.50...10.60

Del.quantity cm3/ : 9.1...9.4

100 s: (8.8...9.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0
 Rack travel in mm : 6.1...6.3
 Del.quantity cm3/ : 1.5...2.0
 100 s: (1.2...2.2)
 Spread cm3 : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Del.quantity : 91.0...94.0

1000 : (88.5...96.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.50

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.2

Testing:

Speed rpm : 100

Minimum rack trave: 7.70

Speed rpm : 250

Rack travel in mm : 6.10...6.30

Rack travel in mm : 2.00

Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.50...10.60

2nd speed rpm : 500

Rack travel in m: 10.50...10.70

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1100

Del.quantity cm3/ : 101.0...109.0

1000 s: (98.0...112.0)

Speed rpm : 500

Del.quantity cm3/ : 77.0...85.0

1000 s: (74.0...88.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 110.0...130.0

1000 s: (106.0...134.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.10...6.30

Del.quantity cm3/ : 15.0...20.0

1000 s: (12.5...22.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

: MAN-NR. 2-7768

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a28
Edition : 30.09.88
Replaces : 11.12.87
Test oil : ISO-4113

Combination no. : 0 402 036 069

Injection pump
Pump designation : PES6P120A720/3LS470-
3

EP type number : 0 412 026 051
Governor
Governor design. : RQ300/1100PA679-2
Governor no. : 0 421 801 402

Customer-spec. information
Customer : MAN

Engine : D2866LUL

1st version kW : 213.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 18.3...18.5

100 s: (18.0...18.8)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 183.0...185.0

1000 : (180.0...188.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.60
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.1

Testing:

Speed rpm : 100
Minimum rack trave: 6.60
Speed rpm : 300
Rack travel in mm : 5.00...5.20
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : 0.20
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.60...10.70
2nd speed rpm : 750
Rack travel in m: 11.20...11.40
3rd speed rpm : 925
Rack travel in m: 10.70...11.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.80...9.00
2nd pressure hPa : 210
Rack travel in m: 9.10...9.20
3rd pressure hPa : 375
Rack travel in m: 9.90...10.20

START CUT-OUT

Speed 1/min : 190 (210)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100

Del.quantity cm3/ : 190.0...196.0
1000 s: (187.0...199.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 174.0...180.0
1000 s: (171.0...183.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7878

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a30
Edition : 11.11.88
Replaces : 6.11.87
Test oil : ISO-4113

Combination no. : 0 402 036 071

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA813-3
Governor no. : 0 421 801 422

Customer-spec. information
Customer : MAN

Engine : D2866TOM

1st version kW : 213.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 19.1...19.3

100 s: (18.8...19.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...4.9

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 191.0...193.0

1000 : (188.0...196.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 9.30
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 385...425

TORQUE CONTROL

Dimension a mm : 0.30
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 10.30...10.40
2nd speed rpm : 750
Rack travel in m: 11.00...11.20
3rd speed rpm : 980
Rack travel in m: 10.90...11.10
4th speed rpm : 1030
Rack travel in m: 10.40...10.70

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 10.60...10.70

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 240
Rack travel in m: 8.90...9.00
3rd pressure hPa : 520
Rack travel in m: 9.90...10.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 193.0...197.0
1000 s: (190.0...200.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 184.0...190.0
1000 s: (181.0...193.0)
Aneroid pressure h: 20
Speed rpm : 500
Del.quantity cm3/ : 168.0...180.0
1000 s: (165.0...183.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a31
Edition : 10.02.89
Replaces : 30.9.88
Test oil : ISO-4113

Combination no. : 0 402 036 073

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA813-4
Governor no. : 0 421 801 425

Customer-spec. information
Customer : MAN

Engine : D2866KUH

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.50...12.60

Del.quantity cm³/ : 23.8...24.0

100 s: (23.5...24.3)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.9...5.1

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 238.0...240.0

1000 : (235.0...243.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.50
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.0

Testing:

Speed rpm : 100
Minimum rack travel: 6.50
Speed rpm : 300
Rack travel in mm : 4.90...5.10
Rack travel in mm : 2.00
Speed rpm : 400...440

TORQUE CONTROL

Dimension a mm : 0.35
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.50...11.60
2nd speed rpm : 750
Rack travel in m: 12.70...12.90
3rd speed rpm : 880
Rack travel in m: 12.30...12.50
4th speed rpm : 925
Rack travel in m: 11.70...12.00

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.50...12.60

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.50...8.70
2nd pressure hPa : 190
Rack travel in m: 8.90...9.00
3rd pressure hPa : 520
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

L18

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 218.0...222.0
1000 s: (215.0...225.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 238.0...244.0
1000 s: (235.0...247.0)
Aneroid pressure h: 20
Speed rpm : 500
Del.quantity cm3/ : 191.0...197.0
1000 s: (188.0...200.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.90...5.10
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7904

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a33
Edition : 30.09.88
Replaces : 6.4.88
Test oil : ISO-4113

Combination no. : 0 402 036 074

Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA658-24
Governor no. : 0 421 801 437

Customer-spec. information
Customer : MAN

Engine : D2866K0H

1st version kW : 265.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.20...12.30

Del.quantity cm3/ : 22.8...23.0

100 s: (22.5...23.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0
Rack travel in mm : 4.7...4.9
Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 228.0...230.0

1000 : (225.0...233.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.20
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 4.8

Testing:

Speed rpm : 100
Minimum rack trave: 6.30
Speed rpm : 300
Rack travel in mm : 4.70...4.90
Rack travel in mm : 2.00
Speed rpm : 345...385

TORQUE CONTROL

Dimension a mm : 0.55
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.20...11.30
2nd speed rpm : 750
Rack travel in m: 12.70...12.90
3rd speed rpm : 920
Rack travel in m: 12.40...12.60
4th speed rpm : 985
Rack travel in m: 11.60...11.90

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 12.20...12.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.10...9.30
2nd pressure hPa : 80
Rack travel in m: 9.40...9.50
3rd pressure hPa : 400
Rack travel in m: 11.00...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

L20

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 210.0...214.0
1000 s: (207.0...217.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 228.0...234.0
1000 s: (225.0...237.0)
Speed rpm : 500
Del.quantity cm3/ : 188.0...200.0
1000 s: (185.0...203.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 134.0...136.0
1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7910

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a35
Edition : 07.04.89
Replaces : 11.7.88
Test oil : ISO-4113
Combination no. : 0 402 036 076
Injection pump
Pump designation : PES6P120A720/3LS470-4
EP type number : 0 412 026 055
Governor
Governor design. : RQV300...1100PA700-5
Governor no. : 0 421 813 713

Customer-spec. information
Customer : MAN

Engine : D2866LFG

1st version kW : 243.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.30...11.40

Del.quantity cm3/ : 20.2...20.4

100 s: (19.9...20.7)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.8...5.0

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
travel mm : 1.50...1.90

2nd speed rpm : 450
travel mm : 2.90...3.50

3rd speed rpm : 850
travel mm : 5.50...5.90

4th speed rpm : 1100
travel mm : 7.40...7.60

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1175

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 202.0...204.0
1000 : (199.0...207.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version
Control Lever
position degrees: 48...56

Testing:

1st rack travel in: 9.80
Speed rpm : 1140...1150
2nd rack travel in: 4.00
Speed rpm : 1225...1255
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever
position degrees: 14...22

Testing:

Speed rpm : 100
Minimum rack travel: 6.40
Speed rpm : 300
Rack travel in mm : 4.80...5.00

CONSTANT REGULATION

Speed rpm : 310...410

TORQUE CONTROL

Dimension a mm : 0.80
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.60...11.70
2nd speed rpm : 1100
Rack travel in m: 10.80...10.90
3rd speed rpm : 865
Rack travel in m: 11.30...11.40
4th speed rpm : 985
Rack travel in m: 10.90...11.20

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.30...11.40

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 9.00...9.20
2nd pressure hPa : 85

Rack travel in m: 9.30...9.40
3rd pressure hPa : 310
Rack travel in m: 10.80...11.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm3/ : 203.0...207.0
1000 s: (200.0...210.0)
Aneroid pressure h: 1000
Speed rpm : 650
Del.quantity cm3/ : 198.0...204.0
1000 s: (195.0...207.0)
Aneroid pressure h: 280
Speed rpm : 500
Del.quantity cm3/ : 184.0...196.0
1000 s: (181.0...199.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 132.0...134.0
1000 s: (129.0...137.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 9.80
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 225.0...245.0
1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.80...5.00
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7911

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9a37
Edition : 10.02.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 036 077
Injection pump
Pump designation : PES6P120A720/3LS470-
2
EP type number : 0 412 026 050
Governor
Governor design. : RQ300/1100PA813-6
Governor no. : 0 421 801 466

Customer-spec. information
Customer : MAN

Engine : D2866TUH/001

1st version kW : 213.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 20.0...20.2

100 s: (19.7...20.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.4

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 750

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 1000

Del.quantity : 200.0...202.0

1000 : (197.0...205.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750

Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.40
Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 5.3

Testing:

Speed rpm : 100
Minimum rack travel: 6.80
Speed rpm : 300
Rack travel in mm : 5.20...5.40
Rack travel in mm : 2.00
Speed rpm : 390...430

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1100
Rack travel in m: 11.40...11.50
2nd speed rpm : 750
Rack travel in m: 11.40...11.60

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 1000
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.50...8.70
2nd pressure hPa : 190
Rack travel in m: 8.80...8.90
3rd pressure hPa : 350
Rack travel in m: 9.80...10.20

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000
Speed rpm : 1100
Del.quantity cm³/ : 208.0...214.0
1000 s: (205.0...217.0)

Aneroid pressure h: -

Speed rpm : 500
Del.quantity cm³/ : 119.0...121.0
1000 s: (116.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40
Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 215.0...235.0
1000 s: (211.0...239.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 5.20...5.40
Del.quantity cm³/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm³ : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7893

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 j2
Edition : 31.03.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 036 729

Injection pump
Pump designation : PES6P120A720LS3205
EP type number : 0 412 026 729
Governor
Governor design. : RQ300/1100PA813-7
Governor no. : 0 421 801 474

Customer-spec. information
Customer : MAN

Engine : D2866LUH

1st version kW : 273.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80
: (3.65...3.85)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 12.80...12.90

Del.quantity cm3/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.1...4.3

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 14.70...16.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Aneroid pressure h: 1200

Del.quantity : 236.0...238.0

1000 : (233.0...241.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 15.5

Testing:

1st rack travel in: 11.80

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 4.2

Testing:

Speed rpm : 100

Minimum rack travel: 5.70

Speed rpm : 300

Rack travel in mm : 4.10...4.30

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.20

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 14.20...14.40

2nd speed rpm : 1100

Rack travel in m: 13.00...13.10

3rd speed rpm : 885

Rack travel in m: 13.80...14.00

4th speed rpm : 935

Rack travel in m: 13.20...13.50

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 1200

Rack travel mm : 12.80...12.90

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 8.50...8.70

2nd pressure hPa : 190

Rack travel in m: 8.90...9.00

3rd pressure hPa : 520

Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

L26

Speed rpm : 1100
Del.quantity cm3/ : 226.0...232.0
1000 s: (223.0...235.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 120.0...122.0
1000 s: (117.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.80

Speed rpm : 1145...1160

INTERMEDIATE RATED SPEED

Rack travel in mm : 4.00

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 200.0...220.0
1000 s: (196.0...224.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 4.10...4.30
Del.quantity cm3/ : 17.0...23.0
1000 s: (14.0...26.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MAN-NR. 2-7946

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,5 a
Edition : 07.04.89
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 0 402 045 022

Injection pump
Pump designation : PES5P110A820LS434
EP type number : 0 412 015 020
Governor
Governor design. : RQ300/1100PA327-3
Governor no. : 0 421 801 151

Customer spec. information
Customer : DAIMLER-BENZ

Engine : OM409

1st version kW : 141.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 11.8...12.0

100 s: (11.5...12.3)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.2
Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 118.0...120.0

1000 : (115.0...123.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.2

Testing:

1st rack travel in: 10.50

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1170...1200

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:
Speed rpm : 100
Minimum rack trave: 10.00
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 375...415

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 100.0...104.0
1000 s: (97.0...107.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.50
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,5 a 4
Edition : 07.04.89
Replaces : 11.85
Test oil : ISO-4113
Combination no. : 0 402 045 023
Injection pump
Pump designation : PES5P110A820LS434
EP type number : 0 412 015 020
Governor
Governor design. : RQ300/1100PA327-4
Governor no. : 0 421 801 173

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM409

1st version kW : 135.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 11.0...11.2

100 s: (10.7...11.4)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 110.0...112.0

1000 : (107.5...114.5)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.2

Testing:

1st rack travel in: 9.40

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.7

Testing:

Speed rpm : 100
Minimum rack travel: 9.10
Speed rpm : 300
Rack travel in mm : 7.60...7.80
Rack travel in mm : 2.00
Speed rpm : 380...420

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 90.0...94.0
1000 s: (87.0...97.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,5 a 9
Edition : 07.04.89
Replaces : -
Test oil : ISO-4113

Combination no. : 0 402 045 026

Injection pump
Pump designation : PES5P110A820LS434
EP type number : 0 412 015 020
Governor
Governor design. : RQ300/1100PA327-4
Governor no. : 0 421 801 173

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM409

1st version kW : 135.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.40...10.50

Del.quantity cm3/ : 11.0...11.2

100 s: (10.7...11.5)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.6...7.8

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 110.0...112.0

1000 : (107.0...115.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.2

Testing:

1st rack travel in: 9.40

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.7

Testing:

Speed rpm : 100
Minimum rack trave: 9.10
Speed rpm : 300
Rack travel in mm : 7.60...7.80
Rack travel in mm : 2.00
Speed rpm : 380...420

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 90.0...94.0
1000 s: (87.0...97.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,5 a 10
 Edition : 07.02.89
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 045 027
 Injection pump
 Pump designation : PES5P110A820LS434
 EP type number : 0 412 015 020
 Governor
 Governor design. : RGV300...1100PA594-1
 Governor no. : 0 421 813 336

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM409

1st version kW : 135.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 5

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 11.0...11.2

100 s: (10.7...11.5)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 110.0...112.0

1000 : (107.0...115.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Control Lever

position degrees: 60...68

Testing:

1st rack travel in: 10.00

Speed rpm : 1140...1150

2nd rack travel in: 4.00

Speed rpm : 1175...1205

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Control Lever
position degrees: 30...38

Testing:
Speed rpm : 100
Minimum rack trave: 9.50
Speed rpm : 300
Rack travel in mm : 8.00...8.20

CONSTANT REGULATION
Speed rpm : 320...435

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 91.0...95.0
1000 s: (88.0...98.0)
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 b
Edition : 21.04.89
Replaces : 7.85
Test oil : ISO-4113
Combination no. : 0 402 046 132
Injection pump
Pump designation : PES6P100A820LS264Z
EP type number : 0 412 006 026
Governor
Governor design. : RQ300/1100PA327R
Governor no. : 0 421 801 062

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 407

1st version kW : 154.5
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.5...8.7

Del.quantity cm3/ : 0.8...1.4

100 s: (0.5...1.6)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 500

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm3 : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 500

Rack travel in mm : 14.2

Testing:

1st rack travel in: 11.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.6

Testing:

Speed rpm : 100
Minimum rack trave: 10.10
Speed rpm : 300
Rack travel in mm : 8.50...8.70
Rack travel in mm : 2.00
Speed rpm : 400...430

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 11.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 135.0...155.0
1000 s: (131.0...159.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 b
 Edition : 21.04.89
 Replaces : 12.9.86
 Test oil : ISO-4113
 Combination no. : 0 402 046 151
 Injection pump
 Pump designation : PES6P100A820LS351Y
 EP type number : 0 412 006 030
 Governor
 Governor design. : RQ300/1100PA327R
 Governor no. : 0 421 801 062

Customer spec. information
 Customer : DAIMLER-BENZ

Engine : OM 407

1st version kW : 147.1
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 7.5...7.7

Del.quantity cm3/ : 0.5...1.1

100 s: (0.2...1.3)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 500

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 99.0...101.0

1000 : (97.0...103.0)

Spread cm3 : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 500

Rack travel in mm : 14.2

Testing:

1st rack travel in: 10.70

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1195...1225
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.6

Testing:

Speed rpm : 100
Minimum rack trave: 9.60
Speed rpm : 300
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 370...410

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 10.70
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 p
Edition : 21.04.89
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 0 402 046 197

Injection pump
Pump designation : PES6P100A820LS351
EP type number : 0 412 006 028
Governor
Governor design. : RQ300/950PA483R
Governor no. : 0 421 801 103

Customer spec. information
Customer : DAIMLER-BENZ

Engine : OM407H

1st version kW : 161.8
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 13.40...13.50

Del.quantity cm3/ : 12.5...12.7

100 s: (12.3...12.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.80...14.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 125.0...127.0

1000 : (123.0...129.0)

Spread cm3 : 3.00

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 14.2

Testing:

1st rack travel in: 12.40

Speed rpm : 990...1000

2nd rack travel in: 4.00
Speed rpm : 1015...1045
4th rack travel in: 1200
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 8.1

Testing:

Speed rpm : 100

Minimum rack trave: 10.10

Speed rpm : 300

Rack travel in mm : 8.00...8.20

Rack travel in mm : 2.00

Speed rpm : 370...410

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 135.0...155.0

1000 s: (131.0...159.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ALO 13,8 e1
Edition : 3.5.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 046 203
Injection pump
Pump designation : PES6P120A320RS411
Governor
Governor design. : RQV445...1250PA497K

Customer-spec. information
Customer : ALLIS CHALMERS

Engine : 6120 T

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 40...45
Overflow valve : 1 417 413 025

Inlet press., bar : 1.5

Test nozzle holder
assembly : 0 681 443 022

Opening
pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
x Wall thickness
x Length mm : 8,00X2,00X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 10.50
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250
Rack travel in mm : 10.30...10.40
Del.quantity cm3/ : 18.6...18.8
100 s : (-)
Spread cm3 : 0.5
100 s : (-)
2nd speed rpm : 445
Rack travel in mm : 5.70...5.90
Del.quantity cm3/ : 1.9...2.5
100 s : (-)
Spread cm3 : 0.8
100 s : (-)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1250
Rack travel in mm : 15.50...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1250
Del.quantity : 186.5...188.5
1000 : (-)
Spread cm3 : 5.0
1000 : (-)

RATED SPEED

1st version
Control lever
position degrees: 56...62

Testing:
1st rack travel in: 9.30
Speed rpm : 1290...1300
2nd rack travel in: 4.00
Speed rpm : 1385...1415
4th rack travel in: 1450
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever
position degrees: 15.5...21.5

Testing:
Speed rpm : 100
Minimum rack trave: 7.30

Speed rpm : 445
Rack travel in mm : 5.70...5.90
Rack travel in mm : 2.00
Speed rpm : 705...765

TORQUE CONTROL

Dimension a mm : 0.60
Torque control curve - 1st version
1st speed rpm : 1250
Rack travel in m: 10.20...10.30
2nd speed rpm : 800
Rack travel in m: 10.80...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800
Del.quantity cm³/ : 184.4...188.5
1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 210.0...250.0
1000 s: (-)

LOW IDLE

Speed rpm : 445
Del.quantity cm³/ : 19.0...25.0
1000 s: (-)

Remarks:

APPLICATION

Tractor (tractor engines)

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,1 q7
 Edition : 11.01.88
 Replaces : 10.85
 Test oil : ISO-4113
 Combination no. : 0 402 046 208
 Injection pump
 Pump designation : PES6P120A720LS388
 EP type number : 0 412 026 030
 Governor
 Governor design. : RQ250/1100PA509
 Governor no. : 0 421 801 117

Customer-spec. information
 Customer : MAN

Engine : D2566MKF

1st version kW : 206.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 17.8...18.0

100 s: (17.5...18.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.2...6.4

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 700

Del.quantity : 178.0...180.0

1000 : (175.0...183.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.20

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 250
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 335...375

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.40...11.50
2nd speed rpm : 1100
Rack travel in m: 10.20...10.30
3rd speed rpm : 875
Rack travel in m: 11.10...11.30
4th speed rpm : 985
Rack travel in m: 10.40...10.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.20...9.30

2nd pressure hPa : 310

Rack travel in m: 10.30...10.40

3rd pressure hPa : 430

Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

M16

Speed rpm : 1100
Del.quantity cm3/ : 160.0...166.0
1000 s: (157.0...169.0)
Aneroid pressure h: 700
Speed rpm : 650
Del.quantity cm3/ : 171.0...177.0
1000 s: (168.0...180.0)
Aneroid pressure h: 310
Speed rpm : 500
Del.quantity cm3/ : 131.0...137.0
1000 s: (128.0...140.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 104.0...106.0
1000 s: (101.0...109.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack travel: 9.20

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.20...6.40
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,1q26
Edition : 11.01.88
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 046 209
Injection pump
Pump designation : PES6P120A720LS388
EP type number : 0 412 026 030
Governor
Governor design. : RQ250/1100PA509
Governor no. : 0 421 801 117

Customer-spec. information
Customer : MAN

Engine : D2566MK

1st version kW : 206.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 17.8...18.0

100 s: (17.5...18.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 6.2...6.4

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.1)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Aneroid pressure h: 700

Del.quantity : 178.0...180.0

1000 : (175.0...183.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 9.20

Speed rpm : 1145...1160
2nd rack travel in: 4.00
Speed rpm : 1180...1210
4th rack travel in: 1400
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 6.3

Testing:

Speed rpm : 100
Minimum rack travel: 7.80
Speed rpm : 250
Rack travel in mm : 6.20...6.40
Rack travel in mm : 2.00
Speed rpm : 335...375

TORQUE CONTROL

Dimension a mm : 0.50
Torque control curve - 1st version
1st speed rpm : 750
Rack travel in m: 11.40...11.50
2nd speed rpm : 1100
Rack travel in m: 10.20...10.30
3rd speed rpm : 875
Rack travel in m: 11.10...11.30
4th speed rpm : 985
Rack travel in m: 10.40...10.70

Aneroid/Altitude Compensator Test

1st version

Setting

Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 9.20...9.30

2nd pressure hPa : 310

Rack travel in m: 10.30...10.40

3rd pressure hPa : 430

Rack travel in m: 10.90...11.10

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 1100
Del.quantity cm3/ : 160.0...166.0
1000 s: (157.0...169.0)
Aneroid pressure h: 700
Speed rpm : 650
Del.quantity cm3/ : 171.0...177.0
1000 s: (168.0...180.0)
Aneroid pressure h: 310
Speed rpm : 500
Del.quantity cm3/ : 131.0...137.0
1000 s: (128.0...140.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm3/ : 104.0...106.0
1000 s: (101.0...109.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 205.0...225.0
1000 s: (201.0...229.0)

LOW IDLE

Speed rpm : 250
Rack travel in mm : 6.20...6.40
Del.quantity cm3/ : 12.0...18.0
1000 s: (9.0...21.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FIA 13,8 s1
 Edition : 10.02.89
 Replaces : 4.84
 Test oil : ISO-4113

Combination no. : 0 402 046 227

Injection pump
 Pump designation : PES6P120A820LS249Y
 EP type number : 0 412 026 041
 Governor
 Governor design. : RGV300...1000PA204/4
 Governor no. : 0 421 813 121

Customer-spec. information
 Customer : IVECO-FIAT

Engine : 8217.32.110

1st version kW : 161.8
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 443 022

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 060

Outside diameter
 x Wall thickness
 x Length mm : 8.00X2.00X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10
 : (1.95...2.15)
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 9.10...9.20

Del.quantity cm3/ : 16.6...17.0

100 s: (16.3...17.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.1

Del.quantity cm3/ : 2.2...3.0

100 s: (1.9...3.3)

Spread cm3 : 0.6

100 s: (0.9)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.90...2.40

2nd speed rpm : 450
 travel mm : 3.50...4.20

3rd speed rpm : 800
 travel mm : 6.30...6.70

4th speed rpm : 1000
 travel mm : 7.80...8.00

5th speed rpm : 1350
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1035

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Del.quantity : 166.0...170.0

1000 : (163.0...173.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 8.10

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1115...1145

4th rack travel in: 1300

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

Speed rpm : 100

Minimum rack travel: 7.50

Speed rpm : 300

Rack travel in mm : 5.90...6.10

CONSTANT REGULATION

Speed rpm : 300...395

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.10

Speed rpm : 1040...1050

Remarks:

:

Check electrically unlatched starting
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,
the start position must be reached.

APPLICATION

Rail car

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 L 2
 Edition : 14.04.89
 Replaces : 11.85
 Test oil : ISO-4113
 Combination no. : 0 402 046 236
 Injection pump
 Pump designation : PES6P110A820LS442
 EP type number : 0 412 016 060
 Governor
 Governor design. : RQ300/950PA483R
 Governor no. : 0 421 801 103

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM407

1st version kW : 162.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 12.2...12.4

100 s: (11.9...12.7)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.0...8.2

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 122.0...124.0

1000 : (119.0...127.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.10

Speed rpm : 990...1000

2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.1

Testing:

Speed rpm : 100
Minimum rack trave: 9.70
Speed rpm : 300
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 410...450

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 118.0...122.0
1000 s: (115.0...125.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 h
Edition : 14.04.89
Replaces : 11.85
Test oil : ISO-4113

Combination no. : 0 402 046 239

Injection pump
Pump designation : PES6P110A820LS422
EP type number : 0 412 016 057
Governor
Governor design. : RQ300/1100PA327-1
Governor no. : 0 421 801 140

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 407 H

1st version kW : 147.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm3/ : 10.3...10.5

100 s: (10.0...10.8)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.4

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 103.0...105.0

1000 : (100.0...108.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.60

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1170...1200
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 6.1

Testing:

Speed rpm : 100

Minimum rack trave: 7.50

Speed rpm : 300

Rack travel in mm : 6.00...6.20

Rack travel in mm : 2.00

Speed rpm : 350...390

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/ : 75.0...79.0
1000 s: (72.0...82.0)

Spread cm3 : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 L 5
Edition : 29.03.89
Replaces : 12.1.89
Test oil : ISO-4113

Combination no. : 0 402 046 240

Injection pump
Pump designation : PES6P110A820LS442
EP type number : 0 412 016 060
Governor
Governor design. : RQ300/1100PA327-5
Governor no. : 0 421 801 163

Customer spec. information
Customer : DAIMLER-BENZ

Engine : OM 407

1st version kW : 162.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
(3.15...3.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm3/ : 11.3...11.5

100 s: (11.0...11.8)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.4

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 113.0...115.0

1000 : (110.0...118.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1190...1220
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.4

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 300
Rack travel in mm : 7.30...7.50
Rack travel in mm : 2.00
Speed rpm : 365...405

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 90.0...94.0
1000 s: (87.0...97.0)
Spread cm3 : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 h 1
 Edition : 14.04.89
 Replaces : 11.85
 Test oil : ISO-4113
 Combination no. : 0 402 046 243
 Injection pump
 Pump designation : PES6P110A820LS422
 EP type number : 0 412 016 057
 Governor
 Governor design. : RQ300/950PA483-1
 Governor no. : 0 421 801 185

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 407

1st version kW : 137.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 10.2...10.4

100 s: (9.9...10.7)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.8...8.0

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 13.00...13.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 102.0...104.0

1000 : (99.0...107.0)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.4

Testing:

1st rack travel in: 10.00

Speed rpm : 990...1000

2nd rack travel in: 4.00
Speed rpm : 1010...1040
4th rack travel in: 1150
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 7.9

Testing:

Speed rpm : 100

Minimum rack trave: 9.50

Speed rpm : 300

Rack travel in mm : 7.80...8.00

Rack travel in mm : 2.00

Speed rpm : 375...415

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600

Del.quantity cm3/ : 93.0...97.0

1000 s: (90.0...100.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 135.0...155.0

1000 s: (131.0...159.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 b 2
 Edition : 29.03.89
 Replaces : 12.11.87
 Test oil : ISO-4113

Combination no. : 0 402 046 247

Injection pump
 Pump designation : PES6P120A320RS417
 EP type number : 0 412 026 036
 Governor
 Governor design. : RQV300...1150PA527-1
 K
 Governor no. : 0 421 815 165

Customer-spec. information
 Customer : RVI

Engine : MIDR 062030

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 8.50...8.60

Del.quantity cm3/ : 14.4...14.6

100 s: (14.1...14.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 600.0
 Rack travel in mm : 5.2...5.4
 Del.quantity cm3/ : 1.8...2.4
 100 s: (1.5...2.7)

Spread cm3 : 0.8
 100 s: (1.2)

(B) Setting of injection pump
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300
 travel mm : 1.70...2.10

2nd speed rpm : 900
 travel mm : 5.80...6.20

3rd speed rpm : 1150
 travel mm : 8.00...8.20

GUIDE SLEEVE POSITION

Control-lever position
 Degree: -1

Speed rpm : 1190
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150
 Del.quantity : 144.0...146.0
 1000 : (141.0...149.0)

Spread cm3 : 5.00
 1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 52...60

Testing:
1st rack travel in: 7.50
Speed rpm : 1205...1215
2nd rack travel in: 4.00
Speed rpm : 1260...1290
4th rack travel in: 1450
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 62...70

Testing:
Speed rpm : 100
Minimum rack travel: 6.30
Speed rpm : 300
Rack travel in mm : 3.30...3.50
Rack travel in mm : 2.00

CONSTANT REGULATION
Speed rpm : 320...440

TORQUE CONTROL
Dimension a mm : 1.80
Torque control curve - 1st version
1st speed rpm : 1150
Rack travel in m: 8.50...8.60
2nd speed rpm : 750
Rack travel in m: 7.60...7.70
3rd speed rpm : 500
Rack travel in m: 7.00...7.20
4th speed rpm : 350
Rack travel in m: 6.70...7.10

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 750
Del.quantity cm3/ : 122.0...128.0
1000 s: (119.0...131.0)
Speed rpm : 500
Del.quantity cm3/ : 69.0...75.0
1000 s: (66.0...78.0)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 7.50
Speed rpm : 1205...1215

NO2

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 3.30...3.50
Del.quantity cm3/ : 18.0...24.0
1000 s: (15.0...27.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

:
Start-of-delivery mark 6° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 h 2
Edition : 14.04.89
Replaces : 11.85
Test oil : ISO-4113
Combination no. : 0 402 046 269
Injection pump
Pump designation : PES6P110A820LS422
EP type number : 0 412 016 057
Governor
Governor design. : RQ300/1100PA681
Governor no. : 0 421 801 222

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM 407

1st version kW : 147.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
: (2.95...3.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm³/ : 10.3...10.5

100 s: (10.0...10.8)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
Rack travel in mm : 8.0...8.2
Del.quantity cm³/ : 1.4...2.0
100 s: (1.1...2.2)
Spread cm³ : 0.4
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1

Speed rpm : 600
Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1100
Del.quantity : 103.0...105.0
1000 : (100.0...108.0)
Spread cm³ : 4.00
1000 : (8.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 13.5

Testing:
1st rack travel in: 9.60
Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1350
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 6.1

Testing:

Speed rpm : 100
Minimum rack trave: 7.50
Speed rpm : 300
Rack travel in mm : 6.00...6.20
Rack travel in mm : 2.00
Speed rpm : 350...390

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500
Del.quantity cm3/ : 76.0...80.0
1000 s: (73.0...83.0)
Spread cm3 : 6.00
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.60
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,4 f
Edition : 29.03.89
Replaces : 11.85
Test oil : ISO-4113
Combination no. : 0 402 046 287
Injection pump
Pump designation : PES6P100A720LS471
EP type number : 0 412 006 034
Governor
Governor design. : RQ250/1100PA685
Governor no. : 0 421 801 227

Customer-spec. information
Customer : MAN

Engine : D2566UH/200

1st version kW : 147.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20
: (3.05...3.25)

Rack travel in mm : 9.00...12.00

Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 750

Rack travel in mm : 12.30...12.40

Del.quantity cm3/ : 9.4...9.6

100 s: (9.2...9.8)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 750

Del.quantity : 94.0...96.0

1000 : (92.0...98.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 16.0

Testing:

1st rack travel in: 11.20

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1215...1245

4th rack travel in: 1350

Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 5.0

Testing:

Speed rpm : 100

Minimum rack trave: 6.50

Speed rpm : 250

Rack travel in mm : 4.90...5.10

Rack travel in mm : 2.00

Speed rpm : 340...380

TORQUE CONTROL

Dimension a mm : -

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.30...12.40

2nd speed rpm : 1100

Rack travel in m: 12.20...12.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500

Del.quantity cm3/ : 85.0...88.0

1000 s: (82.5...90.5)

Speed rpm : 1100

Del.quantity cm3/ : 100.0...104.0

1000 s: (97.5...106.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 115.0...135.0

1000 s: (111.0...139.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 4.90...5.10

Del.quantity cm3/ : 12.0...18.0

1000 s: (9.5...20.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

N06

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 L 9
Edition : 14.04.89
Replaces : 11.85
Test oil : ISO-4113
Combination no. : 0 402 046 298
Injection pump
Pump designation : PES6P110A820LS442
EP type number : 0 412 016 060
Governor
Governor design. : RQ250/1100PA327-8
Governor no. : 0 421 801 256

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : 407 STEHEND

1st version kW : 162.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
: (3.15...3.35)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm³/ : 11.3...11.5

100 s: (11.0...11.7)

Spread cm³ : 0.4

100 s: (0.8)

2nd speed rpm : 250.0

Rack travel in mm : 8.0...8.2

Del.quantity cm³/ : 1.2...1.8

100 s: (0.9...2.0)

Spread cm³ : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 113.0...115.0

1000 : (110.5...117.5)

Spread cm³ : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 7.6

Testing:

Speed rpm : 100
Minimum rack trave: 9.00
Speed rpm : 250
Rack travel in mm : 7.50...7.70
Rack travel in mm : 2.00
Speed rpm : 330...370

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 90.0...94.0
1000 s: (87.0...97.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 L19
 Edition : 14.04.89
 Replaces : 19.5.88
 Test oil : ISO-4113
 Combination no. : 0 402 046 299
 Injection pump
 Pump designation : PES6P110A820LS442
 EP type number : 0 412 016 060
 Governor
 Governor design. : RQ250/950PA483-3
 Governor no. : 0 421 801 363

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM407

1st version kW : 147.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 950

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 11.0...11.2

100 s: (10.7...11.5)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 250.0

Rack travel in mm : 8.4...8.6

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.2)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 950

Del.quantity : 110.0...112.0

1000 : (107.0...115.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.40

Speed rpm : 990...1000

2nd rack travel in: 4.00
Speed rpm : 1035...1065
4th rack travel in: 1150
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 250
Rack travel in mm : 8.1

Testing:
Speed rpm : 100
Minimum rack trave: 9.70
Speed rpm : 250
Rack travel in mm : 8.00...8.20
Rack travel in mm : 2.00
Speed rpm : 330...370

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 600
Del.quantity cm3/ : 97.0...101.0
1000 s: (94.0...104.0)
Spread cm3 : 6.00
1000 s: (9.00)

BREAKAWAY

1st version
1mm rack travel less than
full load rack tr: 10.40
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 140.0...160.0
1000 s: (136.0...164.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,1q31
 Edition : 09.03.87
 Replaces : -
 Test oil : ISO-4113
 Combination no. : 0 402 046 322
 Injection pump
 Pump designation : PES6P110A720LS375
 EP type number : 0 412 016 053
 Governor
 Governor design. : RQ250/1100PA658-17
 Governor no. : 0 421 801 309

Customer-spec. information
 Customer : MAN

Engine : D2566 MTUH

1st version kW : 195.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.00...3.10
 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.70...11.80

Del.quantity cm3/ : 14.3...14.5

100 s: (14.0...14.7)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.9...7.1

Del.quantity cm3/ : 1.0...1.6

100 s: (0.7...1.8)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 143.0...145.0

1000 : (140.5...147.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.70

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1185...1215

4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 7.0

Testing:

Speed rpm : 100

Minimum rack trave: 8.50

Speed rpm : 250

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

Speed rpm : 360...400

TORQUE CONTROL

Dimension a mm : 0.40

Torque control curve - 1st version

1st speed rpm : 700

Rack travel in m: 12.70...12.90

2nd speed rpm : 1100

Rack travel in m: 11.70...11.80

3rd speed rpm : 810

Rack travel in m: 12.50...12.70

4th speed rpm : 950

Rack travel in m: 12.00...12.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : 700

Rack travel mm : 12.60...12.70

Measurement

Speed 1/min : 500

1st pressure hPa : -

Rack travel in m: 10.80...10.90

2nd pressure hPa : 200

Rack travel in m: 11.40...11.50

3rd pressure hPa : 310

Rack travel in m: 11.90...12.30

START CUT-OUT

Speed 1/min : 170 (190)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 700

Del.quantity cm3/ : 156.0...160.0

1000 s: (153.0...163.0)

Aneroid pressure h: 200

Speed rpm : 500

Del.quantity cm3/ : 123.0...127.0

1000 s: (120.0...130.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 112.0...114.0

1000 s: (109.5...116.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.70

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 225.0...245.0

1000 s: (221.0...249.0)

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.90...7.10

Del.quantity cm3/ : 10.0...16.0

1000 s: (7.5...18.5)

Spread cm3 : 4.50

1000 s: (7.50)

Remarks:

: MAN-NR. 2-7588

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 L13
 Edition : 14.04.89
 Replaces : 10.85
 Test oil : ISO-4113
 Combination no. : 0 402 046 324
 Injection pump
 Pump designation : PES6P110A820LS442
 EP type number : 0 412 016 060
 Governor
 Governor design. : RQ300/1100PA327-9
 Governor no. : 0 421 801 327

Customer-spec. information
 Customer : DAIMLER-BENZ

Engine : OM 407 STEHEND

1st version kW : 162.0
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
 quantity min. 1/h: 100...120

Test nozzle holder
 assembly : 0 681 343 009

Opening
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30
 : (3.15...3.35)
 Rack travel in mm : 9.00...12.00
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm3/ : 11.3...11.5

100 s: (11.0...11.7)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0
 Rack travel in mm : 8.1...8.3
 Del.quantity cm3/ : 1.2...1.8
 100 s: (0.9...2.0)
 Spread cm3 : 0.4
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
 Speed rpm : 1100
 Del.quantity : 113.0...115.0
 1000 : (110.5...117.5)
 Spread cm3 : 4.00
 1000 : (8.00)

RATED SPEED

1st version

Setting point:
 Speed rpm : 600
 Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.00
 Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 8.2

Testing:

Speed rpm : 100
Minimum rack travel: 9.50
Speed rpm : 300
Rack travel in mm : 8.10...8.30
Rack travel in mm : 2.00
Speed rpm : 375...415

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm³/ : 88.0...92.0
1000 s: (85.0...95.0)
Spread cm³ : 6.00
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 d 5
 Edition : 29.03.89
 Replaces : 12.12.86
 Test oil : ISO-4113

Combination no. : 0 402 046 328

Injection pump
 Pump designation : PES6P120A320RS419-2
 EP type number : 0 412 026 048
 Governor
 Governor design. : RQ275/950PA753-1
 Governor no. : 0 421 801 377

Customer-spec. information

Customer : RVI

Engine : MIDS/PS062045 FC

1st version kW : 144.0
 Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
 assembly : 1 688 901 019

Opening
 pressure, bar : 207...210

Orifice plate
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter
 x Wall thickness
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
 Insp. values in parentheses
 Set equal delivery quant.
 per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
 : (2.75...2.95)
 Rack travel in mm : 9.00...12.00
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 10.00...11.00

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 8.70...8.80

Del.quantity cm3/ : 11.7...11.9

100 s: (11.4...12.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 525

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 700

Del.quantity : 117.0...119.0

1000 : (114.0...122.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 525

Rack travel in mm : 20.0

Testing:

1st rack travel in: 7.20
Speed rpm : 1015...1030
2nd rack travel in: 4.00
Speed rpm : 1150...1080
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 3.5

Testing:

Speed rpm : 200
Minimum rack travel: 5.30
Speed rpm : 275
Rack travel in mm : 3.40...3.60
Rack travel in mm : 2.00
Speed rpm : 300...340

TORQUE CONTROL

Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 500
Rack travel in m: 8.70...8.80
2nd speed rpm : 950
Rack travel in m: 8.00...8.20
3rd speed rpm : 750
Rack travel in m: 8.30...8.50

Aneroid/Altitude Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 8.70...8.80

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 7.90...8.00
2nd pressure hPa : 245
Rack travel in m: 8.50...8.60

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 950

Del.quantity cm³/ : 136.0...140.0
1000 s: (133.0...143.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 101.0...103.0
1000 s: (98.0...106.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.20
Speed rpm : 1015...1030

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 3.40...3.60

Remarks:

:
Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 8,8 d 6
Edition : 29.03.89
Replaces : 12.12.86
Test oil : ISO-4113

Combination no. : 0 402 046 329

Injection pump
Pump designation : PES6P120A320RS419-2
EP type number : 0 412 026 048
Governor
Governor design. : RQ275/950PA843
Governor no. : 0 421 801 378

Customer-spec. information
Customer : RVI

Engine : MIDS/PS062045D/A

1st version kW : 129.0
Rated speed : 1900

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 8.00...8.10

Del.quantity cm³/ : 10.4...10.6

100 s: (10.1...10.9)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 4.2...4.4
Del.quantity cm³/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm³ : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 525

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Del.quantity : 104.0...106.0

1000 : (101.0...109.0)

Spread cm³ : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 525

Rack travel in mm : 20.0

Testing:

1st rack travel in: 7.00

Speed rpm : 1015...1030

2nd rack travel in: 4.00

Speed rpm : 1040...1070

4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1
Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 3.6

Testing:
Speed rpm : 200
Minimum rack travel: 5.20
Speed rpm : 275
Rack travel in mm : 3.50...3.70
Rack travel in mm : 2.00
Speed rpm : 300...340

TORQUE CONTROL
Dimension a mm : ?
Torque control curve - 1st version
1st speed rpm : 500
Rack travel in m: 8.00...8.10
2nd speed rpm : 950
Rack travel in m: 7.40...7.50
3rd speed rpm : 775
Rack travel in m: 7.60...7.80

START CUT-OUT

Speed 1/min : 210 (230)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 950
Del.quantity cm³/ : 124.0...128.0
1000 s: (121.0...131.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 7.00
Speed rpm : 1015...1030

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 3.50...3.70

Remarks:

N18

:
Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 a 7
Edition : 29.03.89
Replaces : 5.8.88
Test oil : ISO-4113

Combination no. : 0 402 046 330

Injection pump
Pump designation : PES6P120A32ORS419-2
EP type number : 0 412 026 048
Governor
Governor design. : RQ275/1050PA844
Governor no. : 0 421 801 379

Customer-spec. information
Customer : RVI

Engine : MIPS062045B

1st version kW : 176.0
Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 9.20...9.30

Del.quantity cm3/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 3.5...3.7
Del.quantity cm3/ : 1.7...2.3
100 s: (1.4...2.6)
Spread cm3 : 0.8
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1050
Aneroid pressure h: 700
Del.quantity : 160.0...162.0
1000 : (157.0...165.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Setting point:
Speed rpm : 600
Rack travel in mm : 20.0

Testing:
1st rack travel in: 8.20
Speed rpm : 1105...1120
2nd rack travel in: 4.00

Speed rpm : 1170...1200
4th rack travel in: 1300
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 275
Rack travel in mm : 3.6

Testing:

Speed rpm : 200
Minimum rack travel: 5.50
Speed rpm : 275
Rack travel in mm : 3.50...3.70
Rack travel in mm : 2.00
Speed rpm : 310...350

TORQUE CONTROL

Dimension a mm : -
Torque control curve - 1st version
1st speed rpm : 1050
Rack travel in m: 9.70...9.80
2nd speed rpm : 700
Rack travel in m: 9.70...9.90

Aneroid/Altitude
Compensator Test

1st version

Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 9.20...9.30

Measurement

Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.10...8.30
2nd pressure hPa : 260
Rack travel in m: 8.90...9.00
3rd pressure hPa : 230
Rack travel in m: 8.40...8.60

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700
Speed rpm : 700
Del.quantity cm³/ : 148.0...154.0
1000 s: (145.0...157.0)
Aneroid pressure h: -
Speed rpm : 500

Del.quantity cm³/ : 103.0...105.0
1000 s: (100.0...108.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 8.20
Speed rpm : 1105...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 3.50...3.70

Remarks:

:
Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

APPLICATION

Omnibus

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MAN 11,9 L
Edition : 07.04.89
Replaces : 26.8.88
Test oil : ISO-4113
Combination no. : 0 402 046 336
Injection pump
Pump designation : PES6P120A72ORS517
EP type number : 0 412 026 054
Governor
Governor design. : RQ750PA895
Governor no. : 0 421 801 447

Customer-spec. information
Customer : MAN

Engine : D2866TUE

1st version kW : 190.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...11.90

Del.quantity cm3/ : 21.0...21.2

100 s: (20.7...21.5)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 400.0
Rack travel in mm : 4.4...4.6
Del.quantity cm3/ : 1.2...1.8
100 s: (0.9...2.1)
Spread cm3 : 0.8
100 s: (1.2)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Del.quantity : 210.0...212.0
1000 : (207.0...215.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version

Testing:
1st rack travel in: 10.80
Speed rpm : 750...755
2nd rack travel in: 4.00
Speed rpm : 788...801
4th rack travel in: 900
Speed rpm : 0.00...1.00

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/ : 150.0...170.0
1000 s: (146.0...174.0)

Remarks:

:

APPLICATION

Generator



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 g
Edition : 29.03.89
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 046 337
Injection pump
Pump designation : PES6P120A320RS520
EP type number : 0 412 026 056
Governor
Governor design. : RQV275...1050PA906
Governor no. : 0 421 813 724

Customer-spec. information
Customer : RVI

Engine : MIDRO62045D

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 18.8...19.0

100 s: (18.5...19.3)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.9...5.1

Del.quantity cm3/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.00...1.20

2nd speed rpm : 450

travel mm : 3.30...3.80

3rd speed rpm : 800

travel mm : 5.70...6.00

4th speed rpm : 1050

travel mm : 7.60...7.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1130

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 188.0...190.0

1000 : (185.0...193.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever
position degrees: 61...69

Testing:
1st rack travel in: 9.30
Speed rpm : 1110...1120
2nd rack travel in: 4.00
Speed rpm : 1185...1215
4th rack travel in: 1350
Speed rpm : 0.00...1.00

LOW IDLE 1
Control lever
position degrees: 6...14

Testing:
Speed rpm : 200
Minimum rack travel: 5.50
Speed rpm : 275
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION
Speed rpm : 275...390

Aneroid/Altitude
Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : 700
Rack travel mm : 10.30...10.40

Measurement
Speed 1/min : 500

1st pressure hPa : -
Rack travel in m: 8.10...8.20
2nd pressure hPa : 360
Rack travel in m: 9.70...9.80
3rd pressure hPa : 160
Rack travel in m: 8.50...8.80

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version
Speed rpm : 650
Del.quantity cm³/ : 171.0...177.0
1000 s: (168.0...180.0)
Aneroid pressure h: -
Speed rpm : 500
Del.quantity cm³/ : 102.0...104.0
1000 s: (99.0...107.0)

BREAKAWAY

1st version
1mm rack travel less than

full load rack tr: 9.30
Speed rpm : 1110...1120

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm³/ : 140.0...160.0
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 275
Rack travel in mm : 4.10...4.30

Remarks:

Start-of-delivery mark 9.5° cam angle
after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,4 i 2
Edition : 29.03.89
Replaces : 2.84
Test oil : ISO-4113

Combination no. : 0 402 046 725

Injection pump
Pump designation : PES6P120A820LS3077-10
EP type number : 0 412 026 714
Governor
Governor design. : RQ300/1100PA606-2
Governor no. : 0 421 801 249

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM407A

1st version kW : 206.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 1 688 901 019

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10
(3.95...4.15)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.00...11.10

Del.quantity cm³/ : 16.5...16.7

100 s: (16.2...17.0)

Spread cm³ : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.0...5.2

Del.quantity cm³/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm³ : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 650

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 700

Del.quantity : 165.0...167.0

1000 : (-)

Spread cm³ : 5.00

1000 : (-)

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 20.0

Testing:

1st rack travel in: 10.00

Speed rpm : 1145...1160

2nd rack travel in: 4.00

Speed rpm : 1190...1220

4th rack travel in: 1300

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.1

Testing:

Speed rpm : 100

Minimum rack travel: 6.50

Speed rpm : 300

Rack travel in mm : 5.00...5.20

Rack travel in mm : 2.00

Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 11.00...11.10

2nd speed rpm : 950

Rack travel in m: 11.25...11.45

3rd speed rpm : 850

Rack travel in m: 11.75...11.95

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 500

Pressure hPa : -

Rack travel mm : 10.40...10.60

Measurement

Speed 1/min : 500

1st pressure hPa : 280

Rack travel in m: 10.80...10.90

2nd pressure hPa : 350

Rack travel in m: 11.40...11.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm : 600

Del.quantity cm³/ : 178.5...181.5

1000 s: (-)

Spread cm³ : 8.00

1000 s: (-)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm³/ : 144.0...146.0

1000 s: (-)

Spread cm³ : 8.00

1000 s: (-)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1145...1160

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm³/ : 150.0...170.0

1000 s: (-)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 a 1
Edition : 14.04.89
Replaces : 9.3.87
Test oil : ISO-4113

Combination no. : 0 402 046 751

Injection pump
Pump designation : PES6P110A820LS3131
EP type number : 0 412 016 715
Governor
Governor design. : RQ300/1100PA723
Governor no. : 0 421 801 265

Customer-spec. information
Customer : DAIMLER-BENZ

Engine : OM427H

1st version kW : 177.0
Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve
: 1 417 413 025

Inlet press., bar : 1.50

Overflow
quantity min. 1/h: 100...120

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40
: (4.25...4.45)
Rack travel in mm : 9.00...12.00
Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.10...11.20

Del.quantity cm3/ : 14.0...14.2

100 s: (13.7...14.5)

Spread cm3 : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.1...7.3

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 550

Rack travel in mm : 14.70...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 140.0...142.0

1000 : (137.0...145.0)

Spread cm3 : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.5

Testing:

1st rack travel in: 10.20

Speed rpm : 1140...1150

2nd rack travel in: 4.00
Speed rpm : 1175...1205
4th rack travel in: 1300
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring
Speed rpm : 300
Rack travel in mm : 7.2

Testing:

Speed rpm : 100
Minimum rack trave: 8.80
Speed rpm : 300
Rack travel in mm : 7.10...7.30
Rack travel in mm : 2.00
Speed rpm : 360...400

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600
Del.quantity cm3/ : 117.0...121.0
1000 s: (114.0...124.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100
Del.quantity cm3/ : 130.0...150.0
1000 s: (126.0...154.0)

Remarks:

: